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Co-operative Housing.

I—Bombay.

WE have received a copy of the prospectus of a Co-operative Housing Society which some prominent Catholics of the City of Bombay are intending to start with a view to create housing facilities in the suburbs of the city for middle class Catholic families.

A piece of freehold land measuring $6\frac{1}{2}$ acres has been purchased at Santa Cruz within a few minutes walk of the Railway station of that name on the Island of Salsette and an application has been made to the Government of Bombay for the grant, on a fixed rent, of a block of 11 acres of vacant land which adjoins the land already purchased. It is the intention of the promoters to lay out these $17\frac{1}{2}$ acres into a small settlement, providing not merely acceptable residences but real homes with reasonable privacy and all the amenities of social life and healthy recreation for 80 Catholic families. The settlement will possess a common club, furnished with billiards and other in-door games, with grounds laid out into gardens with tennis and badminton courts, and a croquet lawn. A school with ample play-grounds will be attached to the settlement. A co-operative store and a common dairy will also be its features.

The intention of the Society is to build on the Tenant Co-partnership system under which the land and houses will be owned by the society, while members who hold the minimum number of shares in the Society's capital will be

entitled not only to occupy the tenements so long as they hold the shares but to get also a dividend on the shares. They will however be at liberty to dispose of their shares at their pleasure either to the Society or to incoming members through the Society, and cease themselves to be members. As under this scheme the contribution of the members in the shape of share capital will represent but a small fraction of the cost necessary for the formation and equipment of the settlement, the difficulty connected with capital is proposed to be overcome by the flotation of non-member shares carrying preference dividends, by the admission of deposits and by the raising of loans on the security of the property. It is, however, the object of the Society to eventually eliminate non-member shares by insisting on the tenants to take up additional shares, varying from 20 to 40 in number according to the types of cottages occupied by them, within a certain time of their admission as tenant members. While the rent once fixed is not likely to be raised, the rate of dividend on shares is likely to increase as time progresses for such reasons as (1) the easier terms on which capital is likely to be obtained by the Society when it has established itself and gained the confidence of the public (2) reduction in its working expenses owing to such causes as savings in outlay on repairs, in establishment and supervision charges &c., and (3) increase in income from gardens when they come to bear and in the rent payable by the co-operative stores, common dairy, laundry, etc. When the profits show a substantial increase, a portion of them will be devoted to the creation of a sinking fund with a view to provide capital to rebuild the cottages when the time should come for their demolition. The rents proposed to be charged, namely Rs. 20 to Rs. 34 according to the type of the building to be tenanted, are such as can be easily paid by middle class families and are very moderate considering the accommodation and other conveniences proposed to be provided.

The scheme is, in our opinion, admirably conceived and is well worthy of adoption for the benefit of middle classes in

important towns in this Presidency where rents are high and life in the crowded portions thereof is highly insanitary. Co-operation in the field of house building has so far achieved but little in this Presidency, the chief reason being the underlying idea that the main function of co-operative building societies is to lend money to members to buy or build houses in their *individual* capacity. This idea has gained such a strong hold over this Presidency that, although building or owning houses on the society's behalf is one of the objects set forth in the by-laws of every building society, there has not yet been a single instance of a building society building or buying houses in its *corporate* capacity. By confining themselves to lending money to individual members for house building purposes, building societies have in this Presidency unduly restricted their usefulness. For, in towns where house-sites are dear and building operations costly, advances for house building should necessarily be large if they are at all to be useful, and large advances cannot be made to individual members unless they can furnish substantial security and are able to make heavy equated repayments in discharge of the loans and interest. Both these conditions, it is hardly necessary to point out, are difficult of fulfilment, in the case either of the poor working man or of the ordinary official or petty trader, whom such societies are intended to benefit. Where, however, the society itself builds or owns the buildings on behalf of its members, it is able, in consequence of the larger credit it can command, to raise capital on better and easier terms, to repay it in smaller instalments and to bring quickly into existence, for the benefit of a large body of its members, decent houses built in a healthy locality on sanitary lines and possessing also the conveniences and amenities of corporate citizenship for families of equal social status. Settlements so formed by a society in its corporate capacity possess the further advantage of being capable of being maintained for all time in the same state of efficiency with which they start. The Bombay Catholic Housing Society's prospectus which we are now considering, shows how well a scheme of house-building on the

corporate method can be devised and worked for the benefit of the middle classes, perhaps even without State aid. The only possible objection to this method is the fact that under it no member can ever become the owner of a building and realize the feeling of ownership to which much importance is generally attached in this country. In our opinion, however, too much weight ought not to be attached to this sentiment in the case of the poor and the middle classes who should above all things be free to move about to improve their means and prospects. In their case, owning houses might prove a disadvantage instead of a blessing in the long run, by tying them down to particular places and restricting freedom of movement in pursuit of gain. What these classes really want are good houses, healthy surroundings and social amenities in return for a moderate rent in the places in which they happen to live and work. These the Bombay scheme fully secures to them.

We commend the scheme for the serious consideration of all who are interested in the improvement of housing conditions of the poor and the middle classes in our large cities.

II—Mysore.*

The necessity for providing our poorer and lower middle classes with well-built, sanitary and cheap houses forced itself on public attention here some years ago. The enormous overcrowding that obtained in some of our larger cities like Bangalore and Mysore, the extremely insanitary condition of the dwellings and the unreasonably high rents that had to be paid for them were enough in themselves to cause anxiety to those interested in the welfare of our people, but the advent of plague in 1898 brought matters to a crisis. As a first and important step in the campaign against plague, a comprehensive scheme of town extensions was decided upon by the Government of His Highness the Maharaja of Mysore. The City of Bangalore, later the City of Mysore and still later

* Paper sent by the Registrar of Co-operative Societies, Mysore, to the Bombay Co-operative Housing Association.

other large cities were taken up and well-designed extensions were planned and carried out, the outlay on them being borne mostly by the Government and to a small extent by the Municipalities concerned. Special facilities were afforded to Government servants to acquire sites and build houses in these extensions. The sites were sold to them at an upset price at first and later by auction when competition set in, but they were allowed to pay the purchase money in easy monthly instalments. Advances were made to them of their pay for periods varying from six to twenty-four months, the recoveries of the advances being spread over a number of years. For obvious reasons these facilities could not be extended to the general public.

2. This scheme worked fairly well and so far as the more highly paid Government servants were concerned, it was very satisfactory indeed. But it was found that it had the effect of driving the less highly paid men to the Sowcar. Thus, a man getting a monthly pay of say Rs. 30 would, under this scheme, get an advance of Rs. 360 at the most. The amount being insufficient to build a house meeting his requirements, he would borrow a similar amount from a money-lender pledging his house as security for the loan. The payment of the instalment due on the site value, that on the building advance and the interest on the money-lender's loan would naturally be far beyond his powers and he would soon find himself in difficulties. To meet such cases and to provide facilities for the general public, a co-operative building society was formed in the year 1909 with no share capital but with a reserve liability of Rs. 250 attached to each member. It obtains its funds by means of a cash credit of Rs. 1,00,000 with a co-operative institution at Bangalore. The Society lends loans up to Rs. 2,000 to its members for building or repairing houses on the security of the houses themselves, the loans being recovered in monthly instalments. The Society has been in existence for 7 years and has lent Rs. 67,200 to 141 members.

3. The funds of the institution are too small and its scope too limited to permit of its being of use to more than a few of those who are in need of its services. To afford relief to these latter, a new institution known as the "Gavipur Building Co-operative Society" was recently started. It has a working capital of Rs. 18,650, its members being all holders of sites in the new extension of Bangalore known as the Gavipur Extension. Its scope is wider than the older society referred to in the previous paragraph. Like the other institution, it lends money to its members on the security of sites and houses, but it is also prepared to supply its members with building material or to undertake the construction of the houses themselves. This institution has so far collected a share capital to the extent of Rs. 650 and borrowed Rs. 18,000 from the Provincial Co-operative Bank which it has lent to 27 members for the construction of 27 houses.

4. A society has very recently been started on exactly the same lines for the city of Mysore and there has been a demand for similar societies in many other places, notably in Tumkur and Shimoga. Steps will soon be taken for the formation of societies in these and other places.

5. This is practically all that we have done in co-operative house-building. I shall now refer briefly to certain difficulties and facilities that we have met in the course of our attempts.

6. The first and perhaps the most serious difficulty is the financing of building societies. The members of these societies are, as a rule, people of small means and not more than a small portion of the funds required are raised by shares and deposits. They have got to depend therefore on borrowed capital and in spite of the perfect security of the investment, the societies have not as yet been able to tap the general money market. Arrangements have been made just at present for their being financed by Central Co-operative Institutions. The Bangalore Building Society has, for instance, obtained a cash credit of Rs. 1,00,000 from the

Bangalore Central Bank and the Gavipur Society has borrowed Rs. 18,000 from the Provincial Co-operative Bank. But it cannot be said that these arrangements are satisfactory. Firstly, the capital thus raised is far short of the requirements of the societies. Tenements and flats are not in vogue here and each family requires a separate and independent dwelling, thus increasing the total cost of the houses. Next, the central institutions are not prepared to grant loans for more than 10 years at the most, whereas the societies want them for far longer periods. Lastly, loans from Central Banks are charged interest at 7 to $7\frac{1}{2}$ per cent. so that loans to individual members cannot well be granted under $8\frac{1}{2}$ to 9 per cent. This rate of interest is found to be too high and unless some means can be found of obtaining cheap and long-term credit to Building Societies, I fear that their success cannot be assured. Under present conditions, I think it necessary that Government should come to their help. As to the exact form in which this help should be rendered, I personally consider that Government should grant loans to the Provincial Co-operative Bank at a rate not exceeding $4\frac{1}{2}$ per cent, for lending to Building Societies for periods of not less than 25 years at 6 per cent, interest, the responsibilities of lending and recovering the moneys from the Building Societies being assigned to the Apex Co-operative Institution in the State. In this connection, it is imperative that the funds thus made available should be used for the benefit of individuals of small means, no loans out of them being granted to holders of houses costing more than Rs. 1,000.

7. A second difficulty which we experience in Mysore is a lack of enthusiasm on the part of those for whose benefit building societies are intended. There are persons who believe in its object, principles and methods in a way but not to the extent of starting and working the societies unaided.

8. The question as to who should retain the ownership of the houses, the Society or the individual members, has received some attention here. The advantages of the society

owning the houses are quite well known, but in spite of them the general feeling here is in favour of individual ownership. This is perhaps because the causes which make joint ownership desirable in the West do not exist in Mysore.

9. I have already referred to the active encouragement which the Government of Mysore affords to the formation of extensions. The financial assistance which it renders to such of its servants as desire to build houses has been mentioned. But its interest in town extensions goes much farther. When an extension has been decided upon, the Government proceeds at once to provide it with roads, lights, water facilities, schools, dispensaries, police stations, post and telegraph offices, play-grounds and other requirements of modern town-life. This facilitates the construction of houses and enables complete and self-contained suburbs to spring up rapidly. We thus have in the Bangalore City alone five extensions with 1,700 houses costing Rs. 40,00,000 within the last fifteen years.

10. There is, in the larger cities of Mysore, as perhaps in larger cities elsewhere, a large number of families whose condition offers the greatest chances of success for co-operative enterprise in house-building. They earn from Rs. 20 to 25 a month of which they pay from Rs. 5 to Rs. 7-8-0 a month as rent for the miserable dwellings occupied by them. They are quite willing to pay a little more if by doing so they can in course of time acquire houses of their own. Their requirements are quite simple, a couple of rooms with a kitchen and a bath room being sufficient to meet their wants. Very recently a large number of people of this description came to me at Mysore and asked me if I could not arrange to provide them with houses costing from Rs. 500 to 1,000. I have formed a society for them and I hope to see the construction work begin soon. Our sites do not cost much as we have ample areas for extension near our cities.

11. From my experience in Mysore, I think that no single type of co-operative building society can be considered as being specially suitable for the country. I would start

a society based on the principles of Co-partnership also, but I would leave the members the option of owning the houses in which they live or of having the value of the houses as shares in the society. I would also leave it to the members to decide whether they will build the houses themselves or get them built for them by the Society. But I would at the same time require them to obtain the approval of the Society before they begin construction and for the repairs or alteration of houses, or their sale. And as regards finance, I am afraid the assistance of Government will have to be sought, at all events, for some years, until the societies are able to command cheap credit for long periods.

Personal Hygiene.

[BY DR. M. R. SAMEY, M.D., D.P.H., (U.S.A.), M. R.
SAN. I., (LOND.)]

"Filthy conditions of homes and manner of living are the greatest predisposing sources of all diseases, but in reality it is the human body which is the original and worst source of all infection. Direct contact plays a most important part in all contagious diseases. One of the greatest factors in remedying this evil is the teaching of personal hygiene."

The following is the first of a series of articles on Personal Hygiene written by Dr. Samey in popular style for the benefit of lay people.

WHOLE volumes of saving truth are contained in the ancient maxim which the wise Greeks wrote above the portals of their temples dedicated to Hygeia, "*Mens sana in corpore sano*" (a sound mind in a sound body). In this paper on Personal Hygiene it is the aim of the author to lay down some es of Health and Prevention of Disease in relation to the individual and so enable the readers as to comport themselves with the spirit of this splendid maxim. Personal Hygiene is not only concerned with matters concerning the health of the individual, but also embraces certain personal factors conducive to good health. They are habit, constitution, heredity, idiosyncrasy, temperament, cleanliness, clothing, exercise, &c.

Habit.

Habit plays an important part in the preservation of health. Habits are easily formed, but are changed only with the greatest difficulty. Habits are created simply by the repetition of the same act. The influence of habits in the formation of the character of individuals is known to all, but their influence on the physical and mental condition of men, particularly of children, can never be over-estimated. This subject may be conveniently argued under the following compartments, which are more or less influenced by habit.

Eating and Drinking.

The old German proverb, "As a man eateth, so is he," is an exact statement of a scientific fact. If a man eats gross food, his blood will be gross, his tissues will be gross, his brain will be gross, and he will have gross thoughts, and will very likely commit gross acts.

The man who wants to make the most of himself will take care that his body is built out of good material ; in other words, will use discretion as regards the sort of stuff he puts into his stomach.

Food to be worth eating must consist of such material as will properly nourish the body, and in such form as will be easily digested. It is also necessary for the welfare of the body that the food should consist of different nutritive elements in proper proportion. A man who undertakes to live upon sugar, or fat, or starch, or albumen, exclusively, will die almost as soon as a man who eats nothing at all, although a mixture containing each of these elements in proper proportions is capable of sustaining life indefinitely.

A regular habit with regard to eating and drinking is of paramount importance for the preservation of health. Food, which must always be wholesome, should be properly masticated and eaten slowly. It is a bad habit to overload the stomach. There is vastly more danger of eating too much than too little. The mother who fears her child may starve

to death before morning if sent to bed without its supper would undoubtedly find it difficult to believe that Dr. Tanner could live forty days without tasting food, a period which has been in other instances of fasting considerably exceeded. The manner of taking food is a matter of quite as great consequence as the quantity eaten. The very best food, hastily bolted, may be digested less perfectly than food naturally difficult of digestion, but which has been deliberately and thoroughly masticated. It is said of Gladstone that he required his children to make forty movements of the jaws for each morsel of food before swallowing it; and if he himself followed the same rule, this may possibly have been one of the secrets of the remarkable strength of mind and body which enabled him to do more work as an octogenarian than most men are able to do at half that age.

In connection with food, I cannot do better than quote Dr. Densmore, M.D., from his *Natural Food*: We maintain that the food of primeval man consisted of fruit and nuts of sub-tropical climes, spontaneously produced; that on these foods man was (and may again become) at least as free from disease as the animals are in a state of nature. Physiologists unite in teaching that these foods are adapted to digestion in the main stomach, where surely, the great bulk of our food should be digested; whereas cereals, pulses, bread, and in fact all starch foods are digested in the intestines and hence it is maintained, are unnatural and disease-inducing foods, being the cause of the nervous prostration and broken down health that abound on all sides.

Since nuts and fruits, especially the former, are not usually obtainable in right varieties and conditions, and as most people have weak powers of digestion and assimilation and are obliged to perform more work than is natural or healthful, it is recommended that milk, cheese, and eggs—and to those not vegetarians, fish, flesh, and fowl—be liberally used as supplemental to the fruit diet. These animal products are “natural” only in the sense that they are suitable for diges-

tion in the first stomach, and are free from the objections urged against bread and other cereal and starch foods.

We urge that all fruits in their season—and including dried dates, figs, prunes, raisins, and apples, each of many varieties—be substituted for bread and other grain foods and starchy vegetables. This course will be found by experience highly beneficial alike to the meat eater and to the vegetarian.

Aside from the question of health, there are other considerations that urge the substitution of fruit for bread and starchy vegetables. Usually fruit is reserved until the last course; by that time most people have always eaten to repletion, and fruit is disregarded and neglected. When this food comes to be regarded as an indispensable and one of the principal factors of alimentation, our dining rooms will, in every-day life, bear some resemblance to the pictures artists so universally delight in providing for their decoration; and an abundance of fruit—with its fine form and beautiful colours—furnishes the artist with boundless resources for ornamentation; the æsthetic and higher nature is stimulated, and we are better able to appreciate “that a thing of beauty is a joy for ever.”

“Always wait for a true appetite” is a true maxim to follow in tuning dietaries. Agreeable society at meal time is cajoling to good digestion. There are certain noteworthy differences between those who are beyond sixty and those who are in middle life as regards physiology, pathology, tendencies to disease and vital resistance. This is particularly noticeable with regard to the two most important functions of animal life—eating and sleeping. Hippocrates has laid down that the old stand fasting much better than those of middle age, and those of middle age much better than the young, children being very easily hurt by lack of food. This is the keynote of eating among the old. They need less food than in earlier years, and if they insist on eating as much as formerly they suffer from it. The way of this is easy of understanding.

They are less active than in middle life, and their heat processes within the body are much slower. Consequently the consumption of fuel is lessened and if the supply exceeds the demand, it will not be long before the fire-box will be clogged and before various processes within the body will be seriously disturbed. Men sometimes literally dig their graves with their teeth. This is applicable in cases of many men, who after a reasonably long life of simplicity in eating, come into conditions of life where dining becomes a function and course dinners and luncheons and breakfasts a routine. The aged are cautioned to be moderate in eating.

Local and Municipal Law.

Some recent cases relating to Local and Municipal Administration.

[By K. Y. ADIGA, B.A., B.L.]

Municipal.

CONSTRUCTION of Statutes.—When a bye-law is made under an Act of Parliament, the repeal of the Act abrogates the bye-law unless the bye-law is preserved by the repealing Act by means of a saving clause or otherwise¹. When a later statute is passed inconsistent with an earlier, the later prevails and the earlier is *pro tanto* repealed.

Powers of Municipalities.

Roads.—Private roads do not vest in the municipality under Section 30 of the Bengal Municipal Act (III of 1884)². The learned judges in this case point out the distinction between private roads and public roads. In the case of public roads, the municipality is responsible for lighting, watering, sewerage and conserving the roads. In the case of private roads, the municipality can exercise control if the public have a right of way over it. With reference to such private roads,

¹ *Watson v. Winch*, 2. L. S. G. G. Rep. 92.

² *Chairman of Howrah Municipality v. Haridoss Dutta*, I.L.R. 43 Cal.

they can exercise control to prevent them from becoming a nuisance, and the rights of the public being interfered with. In *Rudrappa Achary v. Corporation of Madras*¹, Sir John Wallis, C. J., and Phillips, J., held that the municipality had the right to order the removal of an obstruction erected by a person on his private street². Phillips, J., based his decision upon the rule of construction that a statute conferring powers for public benefit should be strictly construed. The learned Chief Justice observes that if the Corporation acquires a house in a private street belonging to another, it does not acquire any further right than the easement of access to such house; and when such house is destroyed, the right of access also ceases.

No one has any right to dig up any portion of the road or to dig up or alter any portion of the drain belonging to a municipality³. The powers of the municipality with reference to roads is quite different from its powers with reference to drains, under the U. P. Municipalities Act.

Buildings.—Section 96 of the Bombay District Municipal Act gives very wide powers of regulating buildings subject to two limitations: (1) the general limitation as to the statutory powers of all public functionaries that the orders issued under it are reasonable, and (2) the particular limitation expressed in the section that the orders are not inconsistent with the Act. The particular instances specified in section 96 were added *abundanti*.

The municipality can only regulate the construction of the house and not the use of it and it is not liable to pay compensation in all cases where the house owner is required to have vacant space between the front of his house and the street, except in the case where the land left vacant is included in a public street.⁴

¹ 2 L. S. G. G. Rep. 116; S. C. 30 I. C. 735.

² See Section 247 of the Madras City Municipal Act, III of 1904.

³ Gulab Sing v. Emperor; 35 I. C. 964.

⁴ Municipality of Karachi v. Mahomed Ali Essap, 33 L.B. 675.

Ferries.—The words “within a distance of two miles above or below the ferry” in the Bengal Municipal Act III of 1884, means within a distance of two miles above or below the ferry along the banks of the river or stream and not within a radius of two miles from the ferry¹. To come within the prohibition the terminus *a quo* and the terminus *ad quoem* must be both within the prescribed area.

Taxation.—Though the Madras City Municipal Act does not define “gross rent,” it is the annual rent which a tenant might reasonably be expected to pay for an hereditament if the landlord undertook to bear the expenses necessary to maintain the hereditament in a state to command that rent. So in the case of a lease providing that the tenant must pay Rs. 20 per mensem as rent and keep the garden properly watered up and if the tenant failed to water, the landlord had to water, and the tenant had to pay Rs. 50 per mensem, and the tenant chose the latter alternative, it was held that the gross rental was Rs. 50 per mensem. The decision proceeds on the ground that watering the garden is necessary to keep it in an efficient state to fetch the rent².

In *Krishna Row v. President of the Corporation of Madras*³ it was argued that a motor car in order to be taxable under Section 150 of the Act (III of 1904) should be kept for hire but the contention was over-ruled and it was held that the word “kept” in section 150 was not qualified by the words “for hire.” This decision lays down that though a motor car is under repair and for that reason unfit for immediate use, it is liable to be taxed.

Under the Bengal Municipalities Act (Sections 321 & 322) latrine fee could be levied only if the holding contained a dwelling house. The court had to consider the question in

¹ *Karrim Ali v. Chairman and Municipal Commissioners of Chittagong*, 35 I.C. 782.

² *Virabudra Aiyar v. President of the Corporation of Madras*, 35 I. C. 589 ; S. C. 2 Local S. G. G. Rep. 115.

³ 2 L. S. G. G. Rep. 112 ; S. C. 35 I. C. 511.

*Rada Gobinda v. Nabadwip Chandra Pāl*¹ whether a holding ordinarily used as a place of business but containing a cook shed and a cow shed and sometimes used by the owner as a place of residence when he was of unsound mind could be charged with latrine fee. Dwelling house means a house with the super-added requirement that it is dwelt in. To dwell is to live and occupy for all the purposes of life. The court therefore held that such a place could not be regarded as a dwelling house and the latrine fee was not leviable.

Profession Tax.—Where a District and Sessions Judge whose usual place of business was within the Municipality of Cuddalore resided for sixty days within the Municipality of Kodaikanal during the annual recess, it was held that he “held his office” during that period within the Municipality of Kodaikanal within the meaning of section 53 of the Madras District Municipalities Act (IV of 1884) and that a payment by him of profession tax for the half-year covering the sixty days to the Municipality of Kodaikanal was a lawful payment exempting him under section 60 from payment of the tax again for the same half-year to the Municipality of Cuddalore.” Ayling J. observed that “the ground of liability was the participation in the benefits and convenience conferred by the Municipality” and that the words “holds office or appointment” do not necessarily involve any suggestion of discharging duties connected with the office or appointment. As the office was not in abeyance, he was holding the office within the Municipality of Kodaikanal. Sankara Nair, J. based his decision on the ground that though the District Judge of Cuddalore could not perform at Kodaikanal any of the duties which had to be performed in court, he could perform certain other duties of his office outside the district. The learned Judge does not, however, point out what these duties are.

Public Health and Sanitation.

Meat.—A person who has sold diseased meat intended for human food cannot be convicted of an offence under section

¹ 19 C. W. N. 1027.

² *Henry Moberly v. The Municipal Council of Cuddalore*, 2 L. S. G. G. Rep. 1.

117 of the Public Health Act, 1875, for having sold it, unless he exposed it for sale.¹ A person who has sold a diseased live bullock to a butcher cannot be convicted under the same Act, because there has been no exposure by him, and the article of food which was seized and condemned was not the article of food sold by him.¹ A person can be convicted whether he knew or did not know at the time of making the sale that the article was unfit for the food of man. Where unsound meat intended for the food of man was being carried in a cart along a road from a knacker's yard to a slaughter house, it was held that the meat was deposited in a place for the purpose of preparation within the meaning of section 116 of the Public Health Act, 1875.²

Milk.—Where a farmer who has contracted to sell new milk to a purchaser supplied milk containing less than 3 per cent. of milk fat which deficiency was due to the manner in which the cows were fed with the object of obtaining a very large supply of milk without due regard to the quality thereof, it was held by the majority of the Judges of the King's Bench that the farmer could not be convicted, while Bray and Scrutton JJ. in their dissenting judgments held that the case should be sent back for a finding as to whether the milk supplied was of merchantable quality.³

Drains.—The powers of the local authority under section 23 of the Public Health Act, 1875, are not confined to the case where there is an available covered cesspool in existence. Notice may be given to the owner of a house to make a covered drain emptying into a covered cesspool to be constructed and in the event of failure the local authority may construct a covered drain and recover the cost from the owner.⁴

Prosecution by Municipal Authorities.

Notice.—Under the Bengal Municipalities Act there are two distinct stages in the preliminary procedure before

¹ Bothamley v. Jolly, 2 L. S. G. G. Rep. 37. See also Webb v. Baker, (1916) 2 K. B. 753.

² Williams v. Allen, 2 L. S. G. G. Rep. 79.

³ Hunt v. Richardson, 2 L. S. G. G. Rep. 119.

⁴ Chelmsford Corporation v. Bradbridge, 2 L. S. G. G. Rep. 104.

applying to the Magistrate for prosecution under section 202. There is first the initial notice under section 175 followed by objection, if any, on the part of the person notified, and next, the explanation or notification of the order absolute, if any, made after the objection is heard. A conviction obtained without the compliance with these formalities was set aside in *Nabin Chundra Aich v. Noakhali Municipality*.¹ Under section 130 of the United Provinces Municipalities Act, no person shall be liable for prosecution for any breach of the rules made under the Act unless he has received notice in writing,² and proceedings against a person under section 87 of the said Act for erecting a pump is wholly misconceived as a pump is not a building.³ Notice under section 114 of the Punjab Municipalities Act must specify the portion of the building which in the opinion of the Committee is in a dangerous state and secondly, the nature of the repairs required. If the notice does not specify these particulars, the conviction for disobedience of such notice is not sustainable.⁴ The fact that compliance with notice would entail heavy loss is no ground for disobeying it.⁵

Sanction for prosecution by the Chairman need not be under seal.⁶ The learned Judges dissent from the view expressed to the contrary in 16 C. W. N. 934 after pointing out the difference in meaning between the words "instituted without order or consent" and "without the sanction." The proviso to section 45 of the Bengal Municipalities Act enables the Chairman to ratify the acts of the Vice-Chairman with reference to a notice under section 230 of the said Act. A complaint cannot be filed by a *Darogha Safia*, as he is not authorised to institute criminal proceedings under section 219 of the Punjab Municipalities Act; and all the subsequent proceedings by the Magistrate are without jurisdiction.⁷

¹ 2 L. S. G. G. Rep. 89; S. C. 23 Cal. L. Jour. 598.

² *Emperor v. Jhamman*, 2 L. S. G. G. Rep. 84; S. C. 34 I. C. 989.

³ *Jaganath v. Emperor*, 35 I. C. 5261.

⁴ *Abdul Aziz v. Emperor*, 2 L. S. G. G. 110; S. C. 32 I. C. 841

⁵ 35 I. C. 377.

⁶ *Chairman of Hugli-Chinsura Municipality v. Krishnalal Mullick*, 2 L. S. G. G. Rep. 93; 20 C. W. N. 824.

⁷ *Emperor v. Dharma Shah*, 2 L. S. G. G. Rep. 96; S. C. 34 I. C. 311.

A Magistrate has no jurisdiction to order a woman using a house as a brothel to vacate it or to pay a fine of Rs. 20. He can only order her to discontinue the use of the house for such a purpose.¹

The word "keep" in the bye-law made by the Municipal Committee means keeping for a lengthened time. There is no word in the English language used in such various and numerous senses as the word "keeping." Tying a sheep for two hours till the time of sacrifice before the temple is not keeping within the meaning of the bye-law.

The expression "other building materials" in bye-law No. 54 of the Ootacamund Municipality must be *ejusdem generis* to "bricks, stone and road metal" in its potentially deleterious effect on the public thoroughfares, and sand does not satisfy this requirement.²

If a person fails to take out a license within the period allowed by section 22 of the Revenue Act (32 & 33 Vict. C. 14) for payment of the duty, he can thereafter be summoned and made liable to the penalty imposed by section 27 for having kept a carriage without a license on a date within these periods³.

Actions against Municipal Authorities.

Express malice is not necessary to sustain an action against the chairman for damages for refusal to allow a person to vote in the election, but the chairman is not liable for mistakes committed in good faith which implies due care and diligence⁴. The Municipal Councillors and specially the members of managing committees are trustees of Municipal funds and they are liable to be sued by the Secretary of State for embezzlement committed by the employees through the gross negligence of the managing committee. The word "misapplication" in section 42 of the Bombay District

¹ Municipal Committee of Lahore v. Radha Rani, 2 L.S.G.G. Rep. 35; S.C. 32 I.C. 334.

² In re Hassan Sahib, 2 L.S.G.G. Rep. 29.

³ Sly v. Randall, 2 L.S.G.G. Rep. 85.

⁴ Draviam Pillai v. Cruz Fernandez, 2 L.S.G.G. Rep. 25; S.C. 31 I.C. 322.

Municipal Act has been used in a very broad popular sense and not in the narrow etymological sense¹.

If a notice is validly given under sections 87 and 88 of the U. P. Municipalities Act, no suit is maintainable against the Municipality². If a person serves the Municipal Board with notice of his intention to rebuild a certain wall and the Municipal Board neglecting to reply requires him to stop the building after he commenced to build, the original notice must be considered as a good notice in the absence of proof that it is not in accordance with law, and the jurisdiction of the Civil Court is not ousted to try a suit for damages under section 140 of the Ajmere Municipal Regulation (Reg. I of 1877).³

Where a Sanitary Inspector was dismissed by the President of the Madras Corporation, it was held that he held office during pleasure of the President and that a court of law could not interfere with the discretion of the President except in cases where malice was proved against him⁴.

A gas company engaged in repairing a gas main in a public highway in pursuance of their statutory power is liable for negligence and also for nuisance done by them on land adjacent to the highway, as adjacent land for this purpose is on the same footing as the highway itself⁵.

No revision lies against the decision of the District Court under section 100 of the Bombay District Municipal Act⁶. Where there is no appeal, there cannot be any revision⁷.

Local Boards.

Under the rules framed by the Local Government under the Bengal Local Self-Government Act III of 1885, no immoveable property can be sold by the District Board except (1) with the previous approval of the Local Government, and (2) except by an instrument under the common seal signed

¹ *Manilal Gunga v. The Secretary of State for India in Council*, 2 L. S.G.G. Rep. 5; S.C. 40 Bom. 116.

² 35 T. C. 222.

³ *Kifayatullah v. Municipal Board of Ajmere*, 2 L.S.G.G. Rep. 31.

⁴ 2 L. S. G. G. Journal 952.

⁵ *Crane v. South Suburban Gas Co.*, 2 L. S. G. G. Rep. 73

⁶ *Chunilal v. Ahmedabad Municipality*, 36 Bom. 47.

⁷ *Belgium Municipality v. Rudrappa*, 18 Bom. L. Rep. 340.

by the chairman and by the members of the Board. It was contended in *Mathura v. Ram Kumar*¹ (1) that these rules were *ultra vires*, and (2) that if they were *intra vires* they were only directory and not mandatory. The court held that they were not *ultra vires* because the expression "regulating the power" in section 138 of the Bengal Local Self-Government Act, when applied to a rule thereunder is comprehensive enough to include power to regulate the mode in which an alienation was to be effected. With reference to the second argument the learned Judges lay down that when a public body is established by statute for special purposes, the prescriptions for its acts and contracts are imperative and essential to their validity though the strict rule of ancient common law that a Corporation could only act under its seal has been relaxed. The learned judges also referred to the presumption against a Corporation that everything has been done to make it a contract binding upon both parties. When a Corporation receives money or property under an agreement which turns out to be *ultra vires* or illegal, it is not entitled to retain the money or property.

Prosecution.—The chairman of a Union Panchayat under the Madras Local Boards Acts (V of 1884) is a public servant. The delegation by the Local Government of the power of appointment to the President of Taluk Boards means that the Local Government performs the act though the medium of a particular officer as the channel through which it is done. The chairman is subordinate to the President of the Taluk Board and his sanction is sufficient for institution of prosecutions against the chairman.

Markets.—Section 117E of the Madras Local Boards Act (V of 1884) deals with two classes of markets—markets in existence at the time the Act came into force, and markets to be opened after the coming into operation of the Act. The Local Board in the exercise of their discretion can refuse a person license to open a new market or to grant him the

¹ 2 L. S. G. G. 51; S. C. 23 Cal. L. J. 26.

license but if a market had been already in existence before the Act came into force, the Board have no option in the matter, and must grant a license to the person who proposes to open the market. Any license granted under the section would expire at the end of the financial year for which it was granted. Sub-clause 1 of section 117 does not refer only to a market to be opened for the first time. So Taluk Boards have a right to demand a fee every year for the license granted¹.

The Case for Municipal Milk.*

[BY H. WILSON HARRIS.]

THE dominating argument for the municipalisation of the milk-supply is a knowledge of the conditions under which milk is produced and sold on the basis of private competition. Readers of the local press in any part of Great Britain know how common are reports like the following, taken at random from the current issue of a London suburban paper :

At the——Petty Sessions yesterday, A. B., of——Road, was summoned for selling milk containing boracic acid.

Mr. C. D., Inspector under the Food and Drugs Act, said the amount of boracic in the milk was 29·7 grains per gallon.

Mr. E., representing the defendant, admitted the sale and also the analysis.

One previous conviction in August last year for selling milk with 16 per cent. added water was admitted, and defendant was fined 5*l.* and 10*s.* 6*d.* costs.

In London, in the last two years for which records are available, official statistics show that of the samples of milk taken by inspectors percentages of 9·3 and 8·9 respectively were found to be adulterated. And the Local Government Board Medical Officer in his last annual report states that in

¹ 36 I. C. 384.

* Reprinted from the *Nineteenth Century*.

the twelve months' under review the two most serious outbreaks of food-poisoning in England and Wales—one involving two fatal and 327 non-fatal cases and the other two fatal and 373 non-fatal cases—both had their origins in milk.

In view of the normal history of a gallon of milk between its source and the point of consumption, facts like these can cause little surprise. Thirteen years ago, the *British Medical Journal* investigated the conditions then prevalent and published a series of reports from commissioners in different areas: 'I was horrified,' writes one of these of a milking operation he had witnessed, 'to see the filthy state of the milk as it flowed out of the pail. It was discoloured with grit, hair and manure. "Look at that," I said, pointing to one specially large bit of manure. I regretted my zeal, for the milker dipped his whole hand into the pail, and as he brought it out said, "Oh, that ain't nothing. It is only off the cow!"'

How for the passage of time has brought improvement may be gathered from the report of a similar investigation made by the *Observer* in the present year. A farm was visited which supplies one of the most expensive schools in England.

The head milker [the investigator records] was milking with a wet hand into an open bucket. The writer spoke of the benefits of the modern covered bucket as a means of preventing dirt falling into the milk; and pointing to what appeared to be a large blue-bottle floating on the surface of the milk in the bucket in which the man was then milking, said that a covered bucket would have prevented that fly from drowning. The milker dipped his hands into the bucket, allowed the milk to run between his fingers, and, looking at what he had caught, remarked with evident approval, 'That isn't a fly—it's muck,' and shook it back again into the milk.

This represents the first stage in the history of a consignment of milk, which may have been drawn from a cow properly tested for tuberculosis or may not. The second stage ought to be immediate passage through a cooler, but on numbers of farms no cooling is done at all, and the bacteria are left undisturbed in the temperature most congenial to their incredible feats of reproduction. The third stage is conveyance to

the station along a dusty road in churns fitted with ventilation holes as effective in admitting dust as air, followed by a period of repose on the platform in or out of the sun, a journey that in extreme cases runs up to twelve hours to the distributing-centre, transportation from the terminal station to the milk-retailer's, and delivery to customers through the familiar agency of the roundsman's cart.

These latter stages are worth more detailed examination. Usually the milk churns are taken from the station to the dairy-man's shop unopened, but it is by no means uncommon to see the transfer of the milk to smaller receptacles in full progress on the station platform in defiance of every elementary canon of hygiene. From that point its treatment varies. In the best cases—and the standard of the best ought to be the universal standard—it goes to a cool and spotless dairy where the milk on the counter is kept in covered pans and the milk delivered goes out in sealed bottles or in diligently-scoured dust-proof cans. In the worst it stands in an open pan in a general shop, with a string of onions contiguous on one side and a box of kippers on the other. The chances are that it will have been subjected before sale to an admixture of preservative that will enable to-night's leavings to be added to to-morrow's supply, or to a judicious infusion of the water for which (according to a Local Government Board calculation) London pays annually about 30,000*l.* in the course of its transactions with the dairyman.

These being the conditions under which a substantial portion of the milk-supply of the nation makes its transit from the cow to the consumer's table, it is worth while to take note, by way of contrast, of the standards of purity and cleanliness prescribed and actually observed by the best producers and vendors of milk in England.

To begin with the cow. The essential qualifications are that it should be reasonably clean—*i.e.*, not plastered with caked manure, died fragments of which are bound to fall into the milk-pail—and free from tuberculosis, mastitis,

and other diseases which lower the purity of the milk or actually infect it. (The danger of tuberculosis milk to human consumers, though for some time a matter of controversy, may now be regarded as definitely established. At present, despite Board of Agriculture regulations, there are no effective safeguards against the supply of infected milk. Cows are sold in the open market without any health guarantee, and when Manchester a few years ago had stringent tests applied to the milk coming into the city many of the dairy farmers announced their intention of sending their supplies to London instead). The tuberculin test regularly applied is an adequate safeguard against undetected tuberculosis, and the other ailments can be either averted by cleanliness or at any rate discovered by careful observation. Light and air in the cowshed are the best of all prophylactics.

After the cow, the milker. There the development of hygienic ideals leaves no place for the picturesque maiden milking with girt-up skirt and bucket between knees in a windy farmyard. On a first-class dairy-farm the milkers wear special overalls and caps; they wash their own hands and the cow's udders before milking, discard the first stream from each cow, receive the rest not in an open pail but in a half-closed bucket, and pass the gallon or so which each cow gives at a milking straight into the cooling-house, to be reduced immediately in the ice or water-cooler to something under 45 degrees Fahrenheit. The effect of this reduction of temperature is to create the conditions most adverse to the multiplication of bacilli.

With regard to rail transport, the best medical opinion holds that there is not the smallest advantage, and there is manifest disadvantage, in the use of ventilated churns. With churns that are air-proof and kept locked on the rail all danger of contamination in transit is eliminated. In its penultimate resting-place, the town dairy, the milk is in the best cases cooled in a refrigerator and carefully guarded against exposure to dust or dirt during delivery. Hygienically, delivering in

sealed bottles is a great advance on the familiar system of dipping up from a can at the customer's door, but breakages entail so considerable an expense as to place the bottle at a disadvantage commercially. Nevertheless, its use (habitual in many Continental countries) is becoming increasingly common, and the practice of bottling, not at the town dairy but at the farm or a country collecting-depôt, is gradually being introduced. Here, however, railway rates are as yet a difficulty.

The conditions of a satisfactory milk-supply were succinctly stated by a joint committee appointed a few years ago by the County boroughs of Bradford, Hull, Leeds, Rotherham and Sheffield, which recommended as follows :

- (1) Washing of udders and flanks of cow and hands of milker.
- (2) Efficient sterilisation of all vessels.
- (3) Rejection of the first draw of milk.
- (4) Avoidance of any work raising dust either immediately before or during milking.
- (5) Removal of milk of each cow immediately from the shed.
- (6) Ventilation and cleanliness of cow sheds.
- (7) That the milk be rapidly cooled or chilled, as the lower the temperature the less do the bacteria multiply.
- (8) That contamination during railway transit be avoided by the use of dustproof locked cans.

That there are dairies and dairy-farms where all these precautions are taken is not to be questioned. But they are a minority, and it is to be feared a small minority, of the whole, and it is difficult to believe that they will be converted into a majority so long as the trade remains in private hands. For it costs more to produce good milk than bad, and clean than dirty. Farmers and dairymen are not philanthropists. Both of them are traders with severe competition to face, and every addition to the cost of production is a serious item in their balance sheets. The small man in particular grudges expenditure on coolers and other equipments, the rejection of doubtful milk that might well pass muster undetected as

part of the general yield and the diversion of labour to maintain the cleanliness of the cows and the buildings. It follows that, within limits, conscientiousness means lower, and laxity means higher, profits, for the public is unfortunately far too indifferent to the quality of its milk to make any searching inquiry into its history. And however honourable farmers may be in such matters, the milk-supply has too intimate a bearing on the national health to justify us in subjecting any producer to the temptation, in the stress of fierce competition, to neglect necessary precautions at the expense of purity or cleanliness. That is the real argument for municipal management. Important as it is to have cheap milk, it is even more important to have pure milk, and under public ownership it would be to no one's financial advantage, from the milker to the roundsman, to omit any single precaution prescribed by considered medical opinion.

But would not pure milk mean dear milk, even under municipal management? To assume that would be to presuppose the continuance of the wasteful overlapping which the present system of private dairies, each with its separate delivery round, entails. A municipality should be able to save on distribution every penny it spends on improved methods of production and to supply milk of the highest standard at a price certainly not above, and probably below, that prevailing to-day.

For compare distribution as it is with distribution as it might be. The machinery involved to-day is the dairyman's cart which fetches the milk from the stations, his shop where it is divided up among the roundsmen, and the roundsmen themselves with their horse-drawn or hand-propelled carts. Under a municipal system there would not be two half-empty carts clattering back side by side from the station to dairies within a couple of hundred yards of each other. There would not be half a dozen redundant milk-shops to the acre. And there would not be five or six roundsmen from as many different dairies delivering milk simultaneously in the same

roads twice or three times every day. Municipal carts up to the number required would convey the milk to the central or district depôts; one depôt would in most localities replace three or four existing dairies (for over-the-counter sales are usually inconsiderable), and the delivery would be as methodical and systematic as the postman's round. And in addition, a linked system of municipal dairies could reduce waste and deterioration by working on a smaller margin for casual and extra sales than the quantity represented by the aggregate surplus of independent competitive businesses.

On that point the recent interim report of the Departmental Committee on Food Prices contributes some important evidence. The wholesale distribution of milk the Committee finds to be a prosperous business. In other words, it yields a substantial profit, of which the benefit under municipal management would go to the consumer. A 'combine,' we are told, 'represents an economy of labour and plant in distribution, much waste of competitive effort being eliminated'—a strong argument in favour of municipalisation—while it is to be observed that the establishment of municipal milk-shops is definitely advocated in cases where they appear to be good grounds for such a departure. As a first step towards the proper organisation of distribution the proposal that all dairyman should be required to supply to the Board of Trade or the Board of Agriculture particulars as to the prices and quantities of their milk contracts should, if carried into effect, be of considerable value.

There need, of course, be no one stereotyped model for a municipal milk scheme. The most heroic proposal would no doubt be the acquisition of compulsory powers providing for the expropriation on equitable terms of all private dairy-businesses and the establishment of a comprehensive municipal supply system. But short of that there are two practicable courses open. A borough might, without interfering with private traders, become both producer and retailer, running its own farms and carrying out its own distribution. It would clearly be necessary, in fairness to the dairyman, to sell at

the standard price. The benefit of the scheme would consist in the raising of the general standard of the milk-supply and the gradual elimination of indifferent dairy-businesses, since the public, negligent as it is, would at least prefer guaranteed to doubtful milk at the same price. Moreover, the municipality, having fixed its own standards of purity, cleanliness, and quality, would no doubt take the step that logically follows and issue certificates to those dairies whose milk habitually approximated to these standards.

The alternative scheme would be for the town to concern itself in the first instance with distribution only, acquiring the milk wholesale from the usual sources and relying, for security as to quality, on stringent agreements with the farmer and the systematic inspection at source, which the Milk and Dairies Act, 1914, will in future make possible. The advantages here would be a probable lowering of price by at least $\frac{1}{2}$ d. a quart, and security against contamination from the terminal station onwards. Whichever of these schemes were adopted, the tendency towards a subsequent extension would be strong, for the saving accruing from a completely organised distribution system would be so great that no borough would be likely to remain permanently content with half measures. We need cheap milk as well as pure milk, for every halfpenny added to the quart means so many thousand more children deprived of the one ideal food Nature has provided for them. And since the maximum of economy in distribution could not be obtained till the system was completely unified, and since, further, no security for cleanliness could be so effective as actual ownership and control of the farms, the argument for complete municipalisation would in time become irresistible.

There has never been a time when public opinion was more disposed to look with favour on proposals for public control of the supply of staple commodities. State intervention on an unprecedented scale in that field has been necessary during the war, and in the case of the milk-supply itself where the authority concerned must clearly be the municipality and not the central government, the demand for public

organisation or ownership is beginning to be heard. Nor is municipal enterprise in this sphere altogether unknown even now. It is true that we are not yet within sight of the reforms effected in America. There the grading and certifying of milk is in numbers of the larger towns an accomplished fact. In New York, for example, every pint of milk that goes into the city passes through the public testing-station, and grading is rigorously enforced, the highest grade milk containing under 10,000 bacteria to the cubic centimetre (compared with an average of some millions in London milk) while the grade answering to the bulk of the supply in this country is saleable only for cooking or manufacturing purposes. The effects of this scientific supervision is clearly traceable in the infant mortality statistics.

Nevertheless, the first steps have been taken in the United Kingdom. A number of borough councils are seriously contemplating application for extended powers. The first stage, and it is of course comparatively rudimentary, is the supply of milk from municipal farms to asylums and other public institutions. Glasgow Corporation, for example, has recently decided to resume occupation of some 300 acres of farm land of which it is the owner and establish a dairy-farm on approved hygienic lines for the supply of milk to hospitals and other institutions. The experiment has obvious possibilities, and the expert on whose advice the City Council has acted pertinently suggests that 'there is every reason to hope the Corporation will be in a position to show an example to the public of how pure milk can be produced under the best sanitary conditions, without loss'.

The second stage is the institution of infant milk depôts such as have been established at Bradford, Leicester, St. Helens, and elsewhere and in one or two London boroughs. The very existence of these depôts is (as Dr. Savage points out in his *Milk and Public Health*) a striking condemnation of the conditions under which milk is produced and vended in crowded urban areas. One of the most efficient of such depôts

is that at Bradford, which supplies not only the maternity centres but a hospital, a sanatorium, and the school feeding-centres. Though there is no ordinary retail trade, no objection is made to casual purchases over the counter. Any surplus milk (and owing to the closing of the feeding-centres on Saturdays and Sundays the demand fluctuates considerably) is converted on the premises into cream, butter, and cheese for the various institutions managed by the Health Committee of the Corporation.

These, however, are very short steps on the road to municipal control. The contrast between such limited and specialised experiments and the scheme a municipality might inaugurate may be pointed out by the quotation of certain provisions in the city of Wellington Milk Supply Act, which in 1910 authorised the Municipal Council of Wellington (New Zealand)

- (1) To establish within or adjacent to the city a milk-station for testing, treating, and distributing the milk supply of the city ;
- (2) To buy and sell milk and to sell cream, to manufacture and sell butter and other milk products, and ice ;
- (3) Generally to carry on the business of a dealer in milk and butter.

The nearest approximation to such a scheme as this in the United Kingdom has recently been under discussion at York, where a proposal to apply for the necessary Parliamentary powers has been rejected by a narrow margin (four votes on a division in which thirty-eight voted), but is likely to be heard of again. Meanwhile, the committee appointed to investigate has issued a valuable report on the whole question. Its terms of reference foreshadowed 'the establishment of a municipal dairy or dairy-farm or both', and the report included findings on two alternative propositions. One (described by the chairman as the ideal scheme) provided in the first instance for the purchase of a dairy-farm, to be stocked with a good class of milk-cow on a gradually increasing scale ; additional milk, properly guaranteed and tested, would be

bought from ordinary farms and delivered from the town distributing centre. The second scheme involved no more than the institution of a receiving centre, with all the necessary machinery for testing, cleaning, and (where desired) pasteurising the milk, and the organisation of distribution.

The objects to be attained by either scheme are (1) the stabilising of the retail price of milk in the face of a strong combine which is said to have the public in its hands; and (2) the ensuring of a supply of milk of guaranteed purity as a necessary public health measure. The model which appealed most to the York Committee of inquiry was the Hull Co-operative Dairy. There the milk comes partly from the Society's own dairy-farm and partly from ordinary private farmers in Derbyshire. The latter supply under stringent undertakings as to the freedom of these herds from disease, the light, ventilation and cleanliness of their cowsheds and the standard of their methods of milking, cooling, and despatch. All such farms are subject to frequent inspection. At the city depot all milk is sampled on arrival and tested for bacteria and the percentage of butter-fat and other solids ascertained. It is then strained, passed through a centrifugal dirt-extractor, pasteurised, cooled and bottled. The bottles, closed with air-tight discs, are stored when storing is necessary, in a refrigerating-chamber, and then sent out in motors to five sub-depots, whence they are delivered to the customers' doors by boys with hand carts. The price is $4\frac{1}{2}d.$ a quart (lately raised from $4d.$), and customers qualify in addition for the usual dividend.

The fact that such precautions can be observed and the milk sold at a reasonable figure is a strong argument for the institution of public control of the milk-supply. The one valid objection to making the supply of high-quality milk compulsory is the assumption that to do so would make the price prohibitive to the poor. There is an element of truth in the criticism. Precautions do cost money. That is why it would be necessary for a town to organise an economic distribution system as a set-off against increased cost of pro-

duction. But the experience of Hull Co-operative Society and of a number of private dairies whose insistence on purity and cleanliness is worthy of the highest praise, shows that there is no necessary antagonism between a high quality and a reasonable price. It is to be feared, however, that the number of such establishments is relatively small, and the opacity of milk effectively conceals from the ordinary consumer defects which would condemn a transparent liquid like water on sight. Hence there is abundance of opportunity for the dirty farmer and the dishonest or struggling dairyman who only keeps going at all by adulterating his milk or watering it down. Constant inspection may effect some improvement, but a proper standard of purity, cleanliness and quality will never be permanently secured till the municipalities have not merely the power of inspection, but either control of the milk from the moment it reaches the town or, better still, actual ownership of the farms.

We have yet far to go before recognition of the truth that pure milk is only less important than pure water becomes universal, and further still perhaps before we realise that the present state of the milk-supply in England is, to quote the verdict of one of the highest authorities on agriculture in the Colonies, appalling. But a sense of the need for improving the national physique, even if no higher motive operates, is at last impressing on us the necessity of securing, for the young at any rate, an irreproachable milk-supply. That can only be effected by public action, and it is by public action, such as the institution of infant milk-depôts, that it is in fact already being effected on an insignificant scale. The next step is to realise that adults need pure milk hardly less than infants. When that has been adequately grasped, the problem of municipal control will be faced in earnest. For whatever the theoretic objections to public ownership, and they are not to be underrated, the War has taught us this at least, that where public action is pronounced necessary and beneficial the obstacles in its path soon cease to be insuperable.

The Madras City Municipal Bill.

[BY C. P. RAMASWAMI AIYAR, B. A., B.L., MUNICIPAL
COMMISSIONER, CORPORATION OF MADRAS]

I

IT is now nearly seven years since the Decentralisation Commission recommended a change in the constitution of the Madras Corporation on the model of the Bombay system. The wheels of Government move slow and after a delay of several years an attempt has been made to undertake the legislation required to carry out the recommendations of the Decentralisation Commission. The Madras City Municipal Bill has just been published and it is to be hoped that it will be introduced in Council at the next winter session. It is, however, a matter for regret that the chief person responsible for the draft Bill will not be able to steer it through.

Before discussing in detail the provisions of the Madras City Municipal Bill, it is as well to keep in mind the objects that it has in view. The first of them is to re-model the internal relations of the Corporation on the basis of the Bombay system in accordance with the recommendations of the Royal Commission on Decentralisation. A nominated official Commissioner with an elected President of the Corporation is to take the place of a nominated official President. In the second place, the Bill proposes to relax the stringency of the Local Government's control over the Corporation. As observed in the Statement of Objects and Reasons, the Local Government have, at present, the power to make the superior appointments, have a control over inferior appointments, have power to interfere with the Annual Budget and their approval is a condition precedent to taxation. The Bill seeks to give the Municipal Council a fuller control over taxation and complete powers in regard to the staff, subject only to the right of the Local Government to exercise a veto in certain specified cases. There is further attempted in the Bill a scheme of devolution of powers from the Local Government

to the Council, from the Council to the Standing Committee, and so forth. Some aspects of this devolution will have to be noticed in greater detail as they are not all progressive in their nature. The borrowing powers of the Corporation are also raised. In addition to carrying out these main ideas, certain defects in the existing Act are also sought to be remedied. In order to obtain a bird's-eye view of the new enactment and properly to comprehend its scope and criticise its various provisions, we shall examine the provisions of the bill *seriatim* contrasting the same with the existing provisions wherever necessary.

The definition of 'building' to include out-houses, chimneys, revetments, buttresses, etc., is an improvement over the old definition in as much as it enables the Municipal authorities to have greater control over the renovation of buildings than they have at present.

The distinction made between casual elections and ordinary elections is a sound one and the provision made in clause 61, sub-clauses 3 and 4, empowering the Divisional Councillor elected at a casual election to hold office only so long as the councillor in whose place he is elected is entitled to hold office and also providing that no casual election shall be held to fill a vacancy occurring within six months before the ordinary election are great improvements on the present practice.

The definition of 're-construction' under clause 3 sub-clause 24 effects a marked change, as it includes the conversion of a place of public worship into any other place and what is more noteworthy, the conversion, into more than one dwelling house, of a building originally forming one dwelling house. The inclusion in this expression of "roofing or covering over an open space between the buildings" is a great improvement in as much as it gives control to the Corporation over an attempt to darken the premises, but the inclusion, within the definition, of the conversion into more than one dwelling house of a building originally constructed as one dwelling house is open to criticism especially in view to the stringent provisions of clause 123 and the following regulations.

It would, we think, be advisable to make it clear that the mere provision of partition walls or devices of that kind consequent on a partition of the dwelling amongst members of a joint family would not come within the mischief of the section.

The definition of 'residence' is also considerably enlarged so as to include the user of any portion of a building occasionally as a sleeping apartment.

Coming now to the composition of the Corporation; at present there are 37 Commissioners in the Council of whom nine are appointed by the Local Government, 20 are elected by the different divisions in the City and 8 by various institutions. The number of the nominated members is preserved intact under the new Bill, whilst the number of the elected members is raised from 20 to 34. Two additions are secured by empowering the South Indian Chamber of Commerce to elect two members to the Corporation.

It is a pity that all the seats are not thrown open for election by similar bodies or organisations, so as to secure adequate representation of different interests.

Clause 4 states that the Municipal affairs of the city shall be administered by a Council, a Standing Committee of the Council and a Commissioner. With all respect, it appears that the Bombay and the Calcutta sections are better worded. The Bombay Act provides:—"The Municipal authorities charged with carrying out the provisions of this Act are 1. The Corporation, 2. The Standing Committee and 3. A Municipal Commissioner." Taken with the other cognate provisions, it is clear, that in Bombay and Calcutta, except when specifically so provided, the ultimate power or authority is the Corporation itself and all residual powers would vest in the Corporation. [Vide section 4 of the Bombay Act III of 1888 and section 5 of Bengal Act III of 1899.] As the Bill at present stands, the Council, the Standing Committee and the Commissioner together constitute the Corporation of Madras. When it is remembered that the Standing Committee

is to consist of the President of the Council and 12 councillors elected by the council from their own number and when it is further borne in mind that the Commissioner shall not be a member of the council, the enactment of clause 4 seems to lose sight of the essential idea that the affairs of the Corporation are to be managed primarily by the Council with powers which are delegated by it either to the Standing Committee or to the Commissioner. Having regard to the functions of the Commissioner and his position in the municipal hierarchy, it is not advisable to make him a component part of the Corporation so as to constitute with the council the body corporate.

The general provisions of clause 5 relating to the constitution of the council are an undoubted improvement in so far as the clause gives 4 seats, two to be filled up by election by the South Indian Chamber of Commerce and two by such other Associations or bodies as the Governor in council may direct.

Amongst the Institutions, with the exception of the South Indian Chamber of Commerce, there is none which represents the popular view as apart from sectional or class interests. It may be a matter for consideration whether representative institutions like the Madras Mahajana Sabha having a definite constitution and designed for the purpose of focussing discussion *inter alia* on questions relating to municipal topics may not be included among the electorates under the Act.

The constitution of the Standing Committee under clause 6 and the enlargement of its members to 12 are also desirable features in as much as the formation of sub-committees would be encouraged.

With regard to the Commissioner, it has to be observed that though he is, to some extent, amenable to the authority of the Council, being removeable by a vote of 28 councillors as provided in clause 28, yet under clause 9 excepting where the Bill itself expressly directs that the sanction of the Council or the Standing Committee should be obtained, the executive

power for the purpose of carrying out the provisions of the Act is vested in the Commissioner. In the absence of a provision such as is contained in section 64 (2) of the Bombay Act generally providing that the Municipal Government of the City should vest in the Corporation or the Council, this enactment might lead to difficulty as it does not keep in view, as already stated, the basic idea that the residual authority or power should always be in the Corporation except to the extent to which it may be delegated and that the ultimate authority is the Council. Clause 9 as is now sought to be enacted reverses this presumption and lays the burden on the Municipal Council to prove that they are entitled to exercise control over the Commissioner in any specified case or class of cases. When it is remembered what the executive powers are that have been vested in him which do not require the sanction of the Council or the Standing Committee, this consideration derives additional force. Having regard to the fact that the Commissioner being appointed by the Governor in Council is not a member of the Council itself and that the remedy provided by clause 28 is in most cases illusory and, in any case, extremely difficult of practical exercise, it is advisable to enact that the final authority with regard to the governance of Municipal affairs is in the Council subject to certain special functions or classes thereof which are or may be *delegated* to the Commissioner or vested in him by the Act.

Clause 11 (b) empowering the Commissioner to be a Member of the Council of the Governor is uncalled for and is not in conformity with the general scheme of the Bill whereunder the Commissioner is to be a whole-time subordinate of the Council. Further, there are likely to arise conflicts between the opinion of the Corporation as a body and of the Commissioner individually which may be reflected in the Legislative Council proceedings and which may have the effect, in the decisions of the Finance Committee and even otherwise, of enabling views to prevail and action to be taken which may not be in consonance with the ideas of the Council or to their advantage.

The provision in clause 13 making it possible to the Commissioner to take leave without any reference to the Corporation or the Standing Committee is a feature which calls for remedy. The Bombay provision seems to be more adequate, namely, that leave of absence may be granted to the Commissioner by the Governor-in-Council with the assent of the Standing Committee.

Clause 193 (2) which empowers the Commissioner to require an owner to obtain a supply of water, section 204 (3) empowering the Commissioner to direct the owner of a building to construct drains in certain specified cases, clause 205 empowering him to close or limit the use of the existing private drains, clauses 316 and 317 giving the Commissioner power to regulate the erection and working of factories, and various other provisions wherein the sanction of the Council or the Standing Committee is not contemplated, illustrate the necessity of a final control being reserved to the Council by way of revision or a residual power, to be exercised when occasion arises. In default of such a provision, the Commissioner is practically unfettered and the only control over him is furnished by clause 28 which, as has been sought to be demonstrated, is difficult and invidious to be put in practice and often impossible adequately to enforce; added to which the remedy provided by clause 28 is too grave and serious for the many petty offences in which the Commissioner might have acted wrongly in the exercise of his discretion and might not be guilty of any turpitude. It must also be remembered that under clause 100, for instance, the Commissioner has the sole power to make appointments to the Corporation especially up to a monthly salary of Rs. 500 and that under clause 112 the order of an authority competent to appoint in respect of fines, reductions and suspensions is sought to be made final. The vesting of practically uncontrollable powers in the Commissioner constitutes one of the most serious objections to the present Bill.

THE STANDING COMMITTEE.—Clause 22 of the Bill empowering the Standing Committee to appoint three or more of

its members as Sub-Committees is a distinct improvement and is in accordance with the practice which of late has been followed in the Corporation of Madras under the *regime* of Mr. Molony.

Clause 23 (1) of the new Bill which though vesting the Municipal Government of the City in the Council expressly takes away any revisional or supervisory functions which the Council might exercise, is a retrograde step and is one which is not in consonance with the general policy of the Bill. It may be asserted that a certain devolution of functions is involved in a scheme of decentralisation, but whatever might be said in regard to the Standing Committee or the Council, the powers of the Commissioner and his status render it obligatory that so far as he is concerned the Council ought to have a final or revisional jurisdiction over him.

Clause 87 empowering the Commissioner to sanction any estimate up to Rs. 10,000 is also a case for such revisional power to be exercised by the Standing Committee or the Corporation, as the case may be.

Clause 24 which is one of the new provisions of the Bill laying an obligation on all Municipal authorities to give effect to the resolutions of the Council is undoubtedly a great reform and a step in the right direction; but from the wording of the clause it is doubtful if it would apply to cases where the Council want to rectify an error committed in the wrong exercise of his discretion by the Commissioner in the discharge of his statutory function, or *vice versa*.

It is noteworthy that under clause 25 (2) the right of interpellation of the President on matters connected with Municipal administration is subject to regulations in regard to which the approval of the Governor-in-Council is not rendered necessary.

Clause 26 is a very desirable provision and is a great improvement; and the enactment of sub-clause 2 relating to confidential matters is of a very useful character. Under clause 32 the Council and the Standing Committee are given

the power to enact regulations with regard to the conduct of their respective proceedings. Though the Local Government's power to remove the Councillors under certain circumstances by virtue of clause 46 need not be made subject to the jurisdiction of the Civil Courts, yet the power of the Governor-in-Council to cancel resolutions (cl. 47) on the ground that they are in excess of the powers conferred by the Act and also the power of the Governor-in-Council to repeal or modify any bye-law should be made subject to the jurisdiction of the Civil Courts to adjudicate upon the adequacy of the ground taken as to excess of jurisdiction and there ought, in any case, to be a provision enabling the Governor-in-Council to obtain the decision of the High Court on the question of jurisdiction arising out of any action that is proposed to be taken under clause 47 of the Bill. This end may be secured by enabling a case to be stated for the opinion of the High Court with appropriate safeguards.

ELECTION AND APPOINTMENT OF COUNCILLORS.—Clause 50 enabling a person to vote both in his personal capacity and as representative of a firm or joint family is an undoubted reform, as well as the provision that residence for 120 days in the year would give the personal qualification to vote on the ground of residence (cl. 52.)

Clause 53 requiring a person to be qualified as the representative of a body to obtain a written authority from the body is unworkable in so far as it relates to a joint family and a provision may be inserted that in the case of a joint family the Manager of the joint family or any person having obtained a written authority to vote on his behalf would be eligible to exercise the franchise on behalf of the family. Of course, this would mean that there should be not only a register of joint families or bodies possessing joint trade but the register will also include a list of persons empowered to act on behalf of such joint bodies either as Managers or otherwise. This would be an easier plan than the one suggested by clause 55 (2) requiring an authorisation in writing from practically

all the adult members of a joint family some of whom may not be at the spot to give authority when an election is taking place. It is not easy to see why under clause 54 of the Bill there ought to be restriction of plural voting; cases may be conceived where the enactment of the provision would work hardship in the case of persons having property or exercising some trade or occupation, in more than one division.

Provision has also been made for the annual election of one-third of the elected Councillors so as to hold all the elections at or about the same time.

Clause 57 (*d*) requiring a sufficient knowledge of English for an intelligent participation in the proceedings of the Council is a great improvement as well as the provision as to residence contained in sub-clause (*e*) of clause 57.

Clause 58 (1) (*b*) (*i*).—The leprosy disqualifying a person for election or appointment as a Councillor must be more clearly defined so as to exclude all cases of harmless and non-contagious ailments.

Clause 58 (*v*) disqualifying for election a Councillor whose term of office as such will not expire before his fresh election or appointment can take effect is an improvement on section 34 (*b*) (1) of the present Act which has given rise to some controversy.

One of the main departures made by the Bill is by an attempt to lay down general rules for election and appointment and to codify the law relating to election offences which at present is not dealt with under the present Act.

The provisions of clause 62 are also an improvement on section 42 of the present Act which enables the Local Government to appoint a person qualified for election as a Municipal Councillor if the election does not take place. Under the Bill, in such cases, the retiring Councillor is deemed to have been re-elected. This is one of the instances in which the Local Government's powers are taken away.

Clause 67 (c) enabling the Governor-in-Council to make rules regarding disputes with reference to election or electoral rolls is a wholesome provision and is intended to remedy the present nebulous state of the law on the subject.

Clause 72 (b) (2) punishing every person who spreads rumours against another knowing it to be false is too widely worded for applicability in this country whatever its utility may be under Western conditions. The rumours referred to therein must be such as affect the qualifications of the candidate or impute to him any moral turpitude.

GENERAL POWERS OF MUNICIPAL AUTHORITIES.—Clause 82 empowering the Council to accept trusts relating to the furtherance of municipal purposes is a right departure.]

Under clause 104 the Municipal Secretary is to be appointed by the Standing Committee. He is to take custody of all papers connected with the proceedings of the Council and any committee appointed by it and of the Standing Committee and any sub-committees thereof. This is taken from the Bombay Code and is rendered necessary by the introduction of the President and the Council as a separate set of functionaries from the Commissioner.

TAXATION AND FINANCE.—In Part III relating to taxation and finance, an attempt is made to grapple with the new financial problems arising in connection with the municipal affairs in this City. The Bill provides for the introduction of fresh taxes: (1) an unearned increment duty, (2) terminal tax, (3) the levy of property taxes at a maximum of 25 per cent. of the annual value of the premises—instead of the present 18½ per cent, (4) an increase in the maximum tax on motor vehicles and on imports of timber and firewood, (5) a cess based on the income-tax. Lastly, the Bill has given greater power to the Council to raise monies.

Clause 114 thus not only enables the Corporation to levy a property tax but also a duty in respect of the “unearned increment” of immoveable property. It further enables a

town duty to be imposed on timber and firewood brought within the city. The most noteworthy changes that have been made are the recognition that the unearned increment of immoveable property is a fit subject of taxation and that there may be levied further a terminal tax on Railway passengers. The terminal tax has many advantages including the facility of collection by the Railway Companies and it would bear lightly upon the individual passenger.

The surcharge on income-tax provided by section 114 (g) would also be more elastic and could be worked more scientifically and equitably than the present profession-tax which as pointed out in the Statement of Objects and Reasons of the Bill is admittedly inelastic. As to the duty in respect of unearned increment, there is likely to be a marked difference of opinion which will have to be dealt with later.

First as regards property-tax. The maximum of 25 per cent. fixed under clause 115 (2) will undoubtedly be felt to be too high, especially in view to the present feeling that already in proportion to the amenities enjoyed in Madras, the house-tax is very heavy indeed. 20 per cent. would be the highest that should be tolerated and in any case the determination by the Commissioner of the annual value of buildings on lands under section 115 (3) ought to be subject to an appeal to the Standing Committee.

Clause 118 (a) enabling the Council with the sanction of the Governor-in-Council to exempt any local area from the whole or any portion of the water, drainage or lighting tax is a step in the right direction in view to the fact that there are a number of localities which do not derive any benefit from the water-supply or drainage system inaugurated in the city.

The increment duty is defined by clause 126 and is sought to be levied as a stamp duty on instruments of conveyance on sales of immoveable property. The imposition of this duty would, whatever may be the case in Bombay or Calcutta, be felt as a great hardship in the present state of the growth of Madras and it is to be feared that advantage would be taken

of clause 126 (3) (e) to bring about a number of instruments nominally executed for no valuable consideration. In any case, the provision in sub-clause 5 enabling the penal provisions to operate where a conveyance is indirectly effected would lead to great oppression. Nor is there any necessity for the enactment of clause 127 (3) (a) and (b).

The elaborate machinery provided by clause 130 for the purpose of calculating the amount of increment duty leviable, the provision for investigation of the value of the improvements on property and the further investigation of the circumstances arising out of benefits reserved on sale and on commission, if any, paid in the transaction make it clear that in actual practice the working of these provisions would lead to great complications and much oppression. It is noteworthy that even under the Calcutta Act of 1899 it has not been deemed necessary to enact the levy of any such increment duty.

Though no doubt during the last two or three years the price of lands and buildings in Madras has been rising, yet the rise is due not so much to the increased amenities of municipal life but to other causes bearing upon the failure of certain Banks or firms in this part of the country and the tardy growth of joint-stock enterprise. It would therefore be hard to justify the levy of an increment duty with its complicated machinery to the circumstances of the city as they at present exist, especially having regard to the present system of annual revisions of the property taxes on the basis of increased values.

As to the surcharge on the income-tax prescribed in clause 159, it is an improvement on the present system of profession tax though the fixing of such a high maximum of 50 per centum is hardly called for. Further, the exemption from this tax is made only in the case of income derived from interest on securities. The tax will therefore apply to income derived from house properties, which under the existing Act is not taxable. This is a serious hardship on house-owners, because it will mean that a person owning house properties will have to pay a double property-tax, one under clause 115

and another under clause 159. It cannot be that the authorities contemplate the imposition of such a double tax; we are rather inclined to attribute this anomaly to imperfect drafting.

The terminal tax on railway passengers to be levied on tickets of all passengers travelling from any place more than 15 miles from the boundary of the city is a fair and equitable burden which ought to be borne by every person who comes to reside in the city and enjoy its civic comforts, and the sentiment of the community will on the whole be in its favour. It has to be noticed that the tax is to be collected on tickets by the railway authorities. This machinery would enable the tax to be collected without any oppression or resort to bribery or other malpractices and on the whole, the terminal tax, which has now been adopted in Calcutta also, is a legitimate source of taxation and ought to be welcomed as a means of adding to the resources of the Madras Corporation which owing to the large schemes on which it has embarked finds itself in the position that its annual expenditure exceeds its revenue.

In surveying the provisions relating to taxation, it has to be noted that the Corporation itself whilst it proposed an enhancement in the rates of the profession tax and the tax on motor vehicles as well as the terminal tax, did not approve of the duty on unearned increment of immoveable property and there is no question that such a duty levied in the manner contemplated by the Bill will give rise to considerable dissatisfaction.

Chapter VI relating to Finance is noteworthy only in so far as it considerably enlarges the power of the Corporation to borrow monies. [Vide clause 167.] Clauses 171 and 172 enabling the Corporation to issue joint debentures payable to either or survivor is a great improvement and would render municipal debentures an attractive form of investment. The provisions regarding supplementary budgets are very well considered and preserve the final control of the Corporation in a very adequate and efficient manner. [Vide clauses 182, 186 (2) and 187.]

Schedule V (Financial Rules) sub-clauses 2 and 3 greatly enlarge the powers of the Corporation and enable it to purchase, exploit and maintain undertakings for lighting streets, the training of nurses and other functionaries, and to acquire new sites to relieve congestion, and the extension of the powers and functions of the Corporation so as to include all matters conducive to the health, convenience and education of the citizens and the amenities of the city, is a departure in consonance with the latest ideas on the subject of Municipal administration.

In the schedule relating to the tax on carriage and animals, double the rate levied on ordinary motor vehicles may be levied on trollies used for the conveyance of goods as they cut up the road very much more than the ordinary car.

The Bombay Corporation.

I.—City Waterworks.

THE Administration of the water works during the last year calls for few special remarks. The income during the year amounted to Rs. 23 23 lakhs, and the expenditure Rs. 23'46 lakhs. The net deficit was therefore '23 lakh. Compared with the previous year the income and the expenditure showed an increase of Rs. 1'07 and Rs. 2'28 lakhs respectively. The increase in income was due to increased consumption of water, through meters, by Railways, Port Trust and Government buildings and factories. The increased expenditure arose out of the increased interest charges on account of heavy loans and the provision of sinking fund instalments in respect of such loans. The figures given in the report seem complete and include not only the annual recurring expenditure but depreciation, interest on loans, sinking fund, &c.

The total quantity of water brought into the city was 14,089 million gallons. The cost of supplying 1000 gallons works out at a little over $2\frac{1}{2}$ annas for a gravitation supply

such as is in Bombay. We believe in Madras, which has a pumped filtered supply the cost per 1,000 gallons at present is a little over $3\frac{1}{2}$ annas.

The chief event of the year was the completion of the duplication of the Tansa Main. The ceremony of inaugurating this supply was performed by Their Excellencies the Governor and Lady Willingdon on the 8th December 1915,* and the whole city commenced to receive the benefit of the increased supply from April 1916.

The total number of house connections stood at 25,270 against 24,906 at the close of the preceding year. Of these 2,590 were metered.

Waste prevention which is an important and unique feature of the Bombay Water Works seems to have been carried out steadily and carefully. 9,860 underground and 21,585 aboveground leaks and defects were detected and repaired. These were the result of examining and sounding over 127 miles of mains of all sizes. The leakage discovered and stopped represents as much as 19,96,720 gallons per hour—a performance that reflects great credit on the staff.

We agree that the water works were maintained in a state of efficiency, and congratulate the Hydraulic Engineer, Mr. H. J. Trivess Smith, M.I.C.E., whose retention, we are glad to note, the Corporation have sanctioned for another term of five years.

II.—Building Bye-laws in Bombay.

THE *Bombay Government Gazette* of December 28th 1916, contains additions and modifications of the building byelaws proposed by the Bombay Municipal Corporation and approved by Government. They relate chiefly to the materials to be used and the thickness for external and party walls of domestic masonry walled buildings. The

* Vide Local Self-Government Gazette, Vol. I, p. 1184.

materials prescribed are bricks, stone, hollow concrete blocks or other hard and incombustible materials. These are to be bonded together with chunam mortar, or cement mortar or other suitable materials to be approved by the Commissioner. The omission of clay as a building material is significant, and we are not sure whether proposals to erect walls of brick in clay will have the approval of the Commissioner. Our opinion is that for ordinary domestic buildings of normal dimensions in height and width, brick in clay walls, except for arches, basement, and for a foot or so below the bottom of joists or girders or rafters serves excellently well. Even in high class buildings we consider that the internal walls may be of brick in clay.

In regard to the thickness of walls, we consider the rules are well on the safe side as regards external walls.

The limits prescribed for superincumbent weight per square foot of horizontal sectional area seem sound and reasonable.

An excellent provision is the insistence of a fire-proof stair-case in buildings intended for more than two families or for carrying on any trade or business or used as a place of resort in which a number of people exceeding twenty may be employed or gather. There should be a minimum width of 3 feet clear length of tread, and where the stair-case is to be used by more than 100 persons, an additional width of one inch shall be provided for every additional 15 persons until a maximum width of 9 feet is obtained. The bye-law lays down that the minimum area that shall be assumed to be occupied by one person shall be 30 square feet.

The interpretation and description of fire-resisting materials call for no remarks.

The bye-laws should result in the erection of sound and solid buildings, although they may enhance the cost of their construction.

III—Education of Factory Children.

At a recent meeting of the Schools Committee, before the regular proceeding began, there was an interview between the Committee and certain representatives of the Millowners' Association, Bombay, and the Educational Inspector, C. D., on the subject of the education of Factory children. The following memorandum briefly giving an account of the steps taken by the Schools Committee in the matter including the history of the Factory Schools it established was supplied to the gentlemen present. After an exchange of views an understanding was arrived at that, by way of experiment, the Millowners' Association should name some centres as suitable for locating Factory Children's Schools, that Municipal Schools should be opened there, and that the Millowners should promise to pay the fees and also to give a monetary bonus or reward, for regular attendance to the boys and girls employed in their Mills to attend the said schools. It was understood that a regular proposal on these lines should be made by the Millowners' Association.

Government wrote to the Municipal Commissioner in January 1911 asking him if the Corporation and the Schools Committee could do something to give effect to the Factory Labour Commission's recommendations for the education of Factory boys. The Corporation referred the matter to the Schools Committee. Thereon this Committee made enquiries on the subject and came to learn that there were 3,350 children working in the several mills and factories in Bombay, a large portion of whom did not attend any school. They could not possibly attend the several ordinary day schools, about 20, which the Committee had been maintaining in the different millhands' quarters of the City. It appeared to the Committee that the most efficacious remedy was for each mill to provide and maintain its own school with arrangements for giving instruction for 2 hours daily to each set of its juvenile hands, according to a special curriculum. The Schools Committee consulted the owners of mills whether they would open such schools themselves or would contribute towards the cost of such special schools as may be opened by the Committee. It appeared that 17 mills had some kinds of schools of their own, which were in an indifferent condition. A few mills had tried the experiment but finding the results disappointing, had closed the schools. Two mills were ready to open schools

afresh and two to pay their mite as contribution. Others thought they had no power to spend any money of the proprietor companies for the education of the factory hands. Eventually the Schools Committee opened four special factory boys' schools, meeting from 9 a.m. to 11 a.m. and 2 p.m. to 4 p.m. The boys were taught according to a special curriculum and no fees were charged. It was found, however, that factory hands would not come to the said schools. Other kinds of boys flocked even into these schools and their parents prayed for full-time schools. Finding it hopeless to attract millhands' boys, all the four schools were converted into regular day schools with a provision, however, that if more than 10 factory boys did come in, a special class should be opened for them. So far, it has been found possible to open only one such special class attached to the DeLisle Road School. It is the result of a former ex-mill hand having come forth, ready and fit to be engaged as the teacher in charge of the class.

In 1913, the Government of Bombay appointed a Committee on which the Hon'ble Sir Ibrahim Rahintoola and the Hon'ble Mr. D. E. Wacha were nominated as the representatives of the Corporation and the Schools Committee, to examine the whole question, suggest measures and state on whom the responsibility for giving effect to any comprehensive scheme that may be adopted, should rest. A majority of this committee recommended that the education of factory children should be made compulsory. All the members were, however, agreed that the half-timer's six hour period of work should by legislature be made compulsorily divisible into two 3 hour periods with a considerable interval between them, which interval might be utilized for the instruction of the children. The Government of Bombay expressed itself disposed to accept the latter suggestion (General Department, Resolution No. 1238, dated 14th February 1916). Consultations are going on as a preliminary to give effect to this proposal by legislature. Meanwhile, the Government Educational

Department has drawn up a special curriculum for Factory Boys' Schools and the Deputy Educational Inspectors have been instructed to give all help and guidance they can, to such Factory Boys' Schools as exist.

"What Mothers Ought To Know." *

[BY MAJOR C. A. F. HINGSTON, I.M.S.]

INTEREST in the welfare of the women and children of this Presidency is a sentiment which, if you only minister to it, may become almost a passion. My career almost demands that it becomes a passion. It is because I am always advising the sick women and children of this Presidency and placing them in their lives, and wondering, that I think I have gained a little insight into the trials and troubles of a mother. I would place the women I have had to deal with in four classes :

1. The ignorant,
2. Those who do not see far enough,
3. The indifferent,
4. Those who try their best.

It is a fact, curious though true, that an animal seems instinctively to know how to provide for its young from the first moment of its arrival into the world till the time that it is enabled to look after itself.

The intelligent and highly cultivated female of the human race seems, however, to be deficient in instinct on the matter. What appalling ignorance I have often seen displayed by the young and inexperienced mother in the bringing-up of her offspring ! She has plenty of affection and love but no knowledge. The young Indian mother is usually influenced a great deal by the barber midwife who attends her, and by the dozen intimate females who are equally ignorant and who have crowded around her at her confinement to assist at the birth of the infant. I can assure you that I once counted 24 women in a confinement room. This was in a poor quarter of a town. Imagine yourself being born into this world under such circumstances, and do you wonder if this particular child does not survive for many months ? Just think of the advice all these women

* Being the third of the Series of Popular Health Lectures (1916) delivered at Madras on December 14th, 1916.

give. Have you ever come across women who do agree? Unfortunately, many so-called nurses have no right to the name at all; they have inherited or invented, certain ideas on the bringing up of a baby to which they cling with all the tenacity of obstinate ignorance. All mothers and nurses should realise that there must be a right way of bringing up a child; no two babies are exactly alike and every child has its own peculiarities but if mothers only knew some of the general principles which underlie the successful rearing of healthy children, they would be able to alter and adapt them to each individual case. Thus instead of being at the mercy of ignorant friends, and barber midwives' opinion and advice, the mother will be able to go on her own way, knowing that it is the right way, and at the same time, will have a good sound reason for all that she does for her baby, be it with regard to clothing, food, ventilation, or anything else.

It may seem to you a Utopian idea, but it would certainly raise the standard of health in the next generation if every girl were obliged, before leaving school, to pass an examination on the very important subject of "How to bring up a baby".

A baby for the first few days of its life, is as a rule beautiful only to its mother. Its utter lack of intelligence makes it even more uninteresting than a puppy, but to its mother it is beautiful and precious. If healthy, it will be plump and will take nourishment readily. Now does every mother realise that her precious infant should have healthy lungs, and these lungs can only be kept healthy if they are protected from chill and if they breathe in pure air? Every baby has a skull with the very precious part inside called the brain. Many mothers are not aware how very thin the bony covering of the brain is and that if the baby's brain is exposed to the sun or receives an injury it becomes so irritated that congestion and fits ensue.

I think mothers do realise that their babies have a digestion, if they do not, they will soon realise it, as their baby will either suffer from diarrhoea or constipation and vomiting. The cause may seem to be a complete mystery to the mother, but I can assure you if you take your child to a doctor he will very soon find out whether the diarrhoea or the constipation and vomiting is due to improper feeding or improper clothing which can be easily put right if taken in time. Many mothers seem to forget that a baby's skin requires

to be most carefully looked after, if its functions are to be properly performed. A baby should be washed daily with good soap, carefully dried with a soft towel, and every part of the skin which is likely to chafe should be freely dusted with powder. Luckily in this country the question of clothing the child, is not so important as in Europe, but still it is not understood properly out here. The clothing should be light, warm enough to prevent chills but not so warm as to keep the child's skin constantly wet with perspiration. The mother should never allow dirty clothing to be put on the child. Every garment put on after its bath should be clean and fresh. She should also see that no irritating soap is used in washing the child's clothes.

One of the first problems a woman will have to face is "WHAT SHALL I FEED BABY ON." The healthy mother must realise that during the first nine months "her milk belongs to her child"; when her baby is nine months old, her milk becomes poor in quality and less in quantity. It is Nature's sign that the child requires more food than the mother can supply and it is an indication for her to wean the child. The unhealthy mother must not bring up her baby on the breast. I can assure you that there are hundreds of pale, thin, weary-looking mothers with all their strength exhausted, trying to feed their babies on their breast and the unfortunate infants are only receiving half the nourishment they require, with the result that these infants are most susceptible to all sorts of diseases. Such things should not be allowed and would often be averted by a little more common sense and care both before and after the baby's birth. If a mother is healthy and is able to nurse her child for the first nine months of its life, the baby is practically immune from diarrhoea and other intestinal troubles. In the British Isles, out of every 100 infants that are born, 16 die before they are a year old and the vast majority of the babies who die are hand-fed. Whereas in India out of every 100 infants that are born, 33 die before they reach a year old. Reasons for this are many, the chief one is that the mother's milk is poor in quality and she, in addition, gives the child all sorts of indigestible and impure foods besides the breast's milk.

Poor breast milk is, of course, worse than cow's milk; but the point to be striven after by every mother who is anxious to do her duty to her child is that her milk should not be poor but good; and she should endeavour, by every means in her power, to provide Nature's own nourishment for her helpless infants. The average

women of the present day, cannot fulfil the duty without a considerable amount of care. Before the child's birth, she must endeavour to place herself in as perfect a condition of health as possible, not by lying about doing nothing but by taking out-door exercises, and by continuing her household duties, and by taking plenty of simple wholesome food.

Some mothers complain that "BABY IS ALWAYS CRYING"; they therefore conclude it is always hungry; there are many other causes for crying besides hunger. These should all be attended to, and then if the baby still cries, probably the reason is that it is hungry. If the baby has been fed at regular intervals, which is a most important duty for a mother and still the infant is not satisfied the milk is probably poor in quality even though it is sufficient in quantity. The mother should in such cases try to improve the quality of her milk by taking more nourishing food. The weight of the child is the best criterion as to whether the milk is sufficiently nourishing. If, day after day, there is no increase in weight even though the child seems contented, the doctor should be consulted.

There are some conditions under which a mother should not nourish her child:—

1. If she be consumptive or markedly scrofulous.
2. If she be suffering from any acute disease, *e.g.*, Typhoid fever or inflammation of the lungs.
3. If she be in a state of great general debility.
4. If, after a fair trial, she has excessive back ache, faintness, or continued prostration.

The ideal feeding for an infant is to be breast fed for nine months; some poor babies are unfortunately deprived of the food that Nature intended for them. What is to be done then? Two alternatives present themselves:

1. The Amah. 2. The bottle.

Now-a-days bottle-feeding has reached such a high state of perfection, that the Amah is a far rarer person than in former years. There are a few cases, however, of weakly or premature children where the Amah is very necessary.

If a bottle has been decided on, you must consider how a bottle-fed baby should be managed and what is to be put in the bottle.

There are three animals whose milk can be utilised for a human baby :—The cow, the goat, and the ass ; goat's milk is very nutritious being stronger than cow's milk ; cow's milk in the vast majority of cases is most convenient to employ. If you are certain that your cow is healthy and the calf is of the right age, you cannot do better than give your child milk from the one cow, but if this is not possible, milk from a mixed herd can be given.

It is very necessary to boil, sterilise or pasteurise the milk ; boiling is the simplest method and be sure you always put the boiled milk in a clean vessel. Milk should be freshly boiled night and morning. All jugs, bottles, measure glasses, and teats must be boiled every day for ten minutes, thoroughly washed in hot water and soda after each meal, and kept in a basin of cold boiled water till next required. You should always have two bottles at least and several teats ; the bottles must be tubeless and if they have an opening at both the ends the valves or corks must be boiled daily. This duty must never be left to a servant. If the mother does not actually do it herself, she should at least see for herself that it is done. In India, cow's milk as a rule is weak in fats, therefore cream and sugar should be added to it. If cream is difficult to obtain, 15 drops of cod-liveroil may be given in two or three bottles in a day. It must be remembered that regularity in feeding is the most important point in the successful rearing of hand-fed children and of breast fed also.

A problem which mothers often worry about is "HOW BIG OUGHT BABY TO BE" The answer to this question depends upon (1) whether the child is healthy (2) whether it is able to digest its food (3) whether it gets the proper kind of food. Roughly speaking a baby doubles its weight by the fifth month, and trebles it at the twelfth. The mother should remember nothing can by any possibility equal good breast milk. But a child reared by hand and fed with suitable food will thrive better and far outstrip one fed exclusively on poor breast milk.

Another problem which a mother worries about is "WHY DOES NOT HER BABY GET ON." I can assure you, in 99 out of 100 cases the mischief has something to do with the diet. Other causes are :—Want of fresh air—want of cleanliness—want of regularity in feeding—improper or insufficient feeding—or an unusually weak digestion. By want of cleanliness I mean that the nurse or mother

has not kept jugs, feeding bottles, etc., clean. By irregular feeding I mean the mother has not noticed the time when the bottle or breast is due, she had fed the baby not at the proper time but every time it cries.

A large number of mothers give their infant children unsuitable diet which includes starch food, which a young infant cannot digest. Starch food means such things as *cunjis*, rice, flour, bread and biscuits. Infants after six months may be given starch foods which have been converted into grape sugar; such foods are known as malted foods. Some of these malted foods are well known to the public. Mellin's food contains no free starch, Benger's contains only a little, Allen and Hanbury's malted food also contains only a little free starch. These are therefore the best foods for use when the digestion of starch is to begin.

It sometimes happens that fresh cow or goat's milk cannot be obtained; dried or desicated milk should then be given; examples of these are Glaxo, in which there is a high percentage of fat, Horlick's Malted Milk and Allenbury's milk which are also good. Mothers must remember when they give these artificial milks that fresh juice, from sweet limes, or oranges must be given to the infants at least two or three times a week.

A number of women in this country feed their children on condensed milk. Now the great drawback of condensed milk is this, it contains too much sugar which upsets the child's digestion and if you give it too much the child will not thrive on it. Another fatal mistake mothers sometimes make is in feeding their infants on condensed *skim* milk, and so depriving them of the necessary constituents of milk. If you are going to use condensed milk, be quite sure that you get a brand which contains plenty of fat, *i.e.*, from which the cream has not been separated.

Now, one of the causes "WHY THE BABY DOES NOT GET ON" is, as I have told you, insufficient food. If you think your baby is suffering from insufficient food because it seems to be continually craving for food, a doctor should be called in to see the child.

It may happen that your child has an unusually weak digestion and is constantly suffering from diarrhoea and vomiting. It may be because the ordinary diet you are giving, which is suitable for children with normal digestion, does not agree, the child has really

a weak digestion. It is very necessary for you to get medical advice on this point. I strongly advise you not to experiment on your unfortunate baby according to the advice of your nurse or nearest friend, but to seek the advice of a Medical Man or Lady Doctor.

The next problem for a mother to solve is this, "WHAT EXERCISE AND SLEEP IS NECESSARY FOR HER BABY". I can assure you exercise and sleep are two very important parts of a baby's life. A tiny baby should be laid on its back on a bed and allowed and encouraged to kick and stretch its limbs and when 10 or 11 months old, should be put on the clean floor to crawl about. Be sure the floor is clean, for a baby puts anything it finds into its mouth. It should not be encouraged to walk too soon, 15 to 16 months is quite young enough to begin to walk. If you see a child under two years of age walking about with bandy legs, it is a disgrace to its mother and nurse. It is their fault because they have fed the child on improper food, with the result that the child has developed Rickets which is a disease causing softening of the bones and so making the legs bend when they carry the weight of the body.

How much sleep should your baby have? During the first fortnight of its life, the baby should sleep between feeding and dressing times, so that it should sleep 19 out of the 24 hours. After the baby is a month old, you should encourage your baby to remain awake for about one hour every evening. If you do this, it will sleep better at nights. As baby grows older, if properly fed, it should remain quite in its cradle wide awake several times during the day. When your baby is 12 months old, it should sleep from 9-30 p. m. at night to 6 a. m. in the morning and should have two periods of sleep in the day-time from 11 to 3 and from 6-30 p. m. to 9 p. m. As a rule, as a child gets older, it should have at least twelve hours sleep at night.

I think I have shown you up to now the importance of understanding the general principles which underlie the successful rearing of healthy children. Let us now further consider why it is so necessary. Infantile Mortality in Madras and in the Presidency is appalling. Statistics which have been furnished to me by the Vital Statistics Section of the Madras Corporation reveal the following startling facts. That in 1911, 19,500 births were registered and nearly 6,000 of these children died during the year and nearly 3,000

more of them died within 4 years. So it happens that about 45% of the children who are born in Madras City die within the first four years of their life, the vast majority of them in the first year. If we count the number of children who are born dead and add this to the number who die in the first year of their life, you find that 50% of the children born into this world in Madras are buried within four years. The same can be said of the years 1912, 1913, 1914 and 1915. The Infantile Mortality of Madras during the last five years has remained very much the same, each year. I am glad to be able to say that the death-rate amongst children in the Moffussil is not so high as in the Presidency Town but it is still much too high. Out of $1\frac{1}{2}$ million born in the Moffussil, about 25% die in the first four years of their life.

The chief causes of death are small-pox, measles, malaria, rheumatic fever, dysentery, diarrhoea, premature birth, general debility, nervous diseases (fits), diseases of the lungs, and a large number of other causes.

Now this state of affairs is sufficiently serious to call for immediate action. Let me compare the death-rate in this town with the death-rate in England. The average at Home is 15%; in some crowded districts it is as high as 30%. Before we consider what should be done in the Presidency Town, let us first of all discuss the causes which give rise to this appalling Infantile mortality in the Madras Presidency Town and in the Moffussil. I would warn you that the figures I have just given you are somewhat low, as the deaths of a number of infants in this Presidency are not notified to the Health Department.

It is very necessary for the public to realise that we cannot hope to have as low an infantile mortality in this Presidency as in Europe, but still we can reduce our mortality very considerably if we go about it in the right way.

Most of you will agree with me that the nations of the world which have established means for the proper care, housing, bringing up and training of their children in the past are to-day the leading nations of the world. Causes therefore that favour infantile mortality conduce also to a deterioration of the nation, which must consequently take a secondary place amongst the nations of the world. If India is to be a great nation, she must first of all realise that she is not looking after her children.

Infantile mortality depends not on conditions affecting only the child or mother, but on conditions which affect the whole race. We shall therefore first consider those general conditions affecting the whole mass of the people in which we include the mother and the child.

The physical characteristics of the Presidency are these; we have a vast plain with hills in the southern parts. The summer is intensely hot thus tending to produce a lower general vitality.

The social status of Indians in general, their rank, their possessions or money, seem to have in a large number of cases, no beneficial effect on their habits, e. g., a fairly well-to-do Indian lady would far rather save her money to buy an extra article of jewellery than spend it on the rent of a house in a healthier part of the Town than where she lives, or she might spend it wisely in taking her family for evening drives on the beach or sending her children to some health resort for some part of the year, but these do not appear to her necessary expenses.

It is not uncommon to find among many Indian ladies a desire for outside glory and love of show while in the house the life is not only very simple, but shows a most deplorable absence of hygienic comforts and disregard of sanitary principles, e.g., in order to give her child a pair of ear-rings or gold bangles, the mother will save, but she certainly thinks it is quite unnecessary to spend any of her savings on a mosquito net for her child.

The attitude of different classes to each other with its caste system has many drawbacks. In many cases the high caste Brahman lives in a well ventilated house with fairly good sanitary arrangements, punkabs, and lights, but he does not realise that his servants living in the same compound are sowing wide-cast the seeds of diseases, by breeding flies and mosquitoes, and polluting the compound in which they are living. The upper classes must remember that if they are assisting the poor they are also helping in the advancement of the whole nation. The welfare of the nation depends upon all the individuals, whatever their caste or creed may be, and quite irrespective of social position; the landlord as well as the ryot, the sweeper women as well as the B. A. of the Women's College must be healthy in body and mind, if the nation is to be a healthy nation and to take the place it ought among the nations of the

world. The aims and objects of the people in general should be to better their country and race, not to strive only to hoard up wealth or acquire lands.

The attitude of men towards women in this country is most unsatisfactory. Women should insist upon being given a higher place in society, respected and honoured, encouraged and educated to lead healthy useful lives, for women after all are the backbone of the nation.

The condition of the life in City, Town and Village will have to be improved. Healthy habits, the importance of recreation and fresh air must be instilled into, public parks must be established; the importance of a proper water supply must be recognised with proper superintendence to see that it is not contaminated; and the elementary principles of sanitation must be taught in order that the diseases which they are frequently subject to, may be averted.

It is most important to awaken the people to the fact that a vegetarian diet is not suited to all and that there must be many cases in which animal food is necessary.

There are climatic conditions which encourage certain diseases such as Malaria, Dysentery, Cholera etc., which have a generally debilitating influence. Ignorance is in many cases a great stumbling block and leads to evils being permitted which might be resisted, e. g., non-vaccination leads to frightful mortality when small-pox epidemics occur.

Drought, famine, shortage of water, all help to swell the death rate, so do monsoons, with no proper housing; this is very noticeable on the West Coast, where such conditions undermine the health of man, woman and child.

Let me now put before you a few obstacles and difficulties which affect chiefly the mother. Let us first consider her family life. The position occupied by the woman in her home is often such that she has not much control over her affairs and those of her family. Unhappiness often results leaving her in a neurasthenic condition, the consequence is that weakly children are born into her family. Her educational capacity for thinking and doing, and her experience are much below what they ought to be, with the result that she does not know how to bring up a healthy child.

Her habits may not be hygienic, e. g., during pregnancy she is ignorant of the necessity for taking exercise, and the necessity for cleanliness and preparation for lactation, the result is in many cases a difficult labour and a weakly child brought into the world.

It often happens that the facilities afforded her for carrying out her ideas, if she has any and if she is educated, are very poor. Medical aid is not at hand, proper food supply for herself and infant is not available. Properly trained midwives or nurses are not always obtainable for conducting her confinements. Amongst the poor the interference of Barber Midwives increases to an appalling extent the risk of death or suffering to both mother and child.

Let me now tell you a few of the disabilities which the child meets with :

1. The child is born diseased.

2. The child though not suffering from disease is the offspring of unhealthy, weakly or consumptive parents. The position and life of the parent may be such that nature herself is the chief guardian of the child. Poverty, ignorance, place of residence of parents, all may affect the life of the child. The mother may be unable to nurse her child from its birth and the child is brought up on impure milk or patent foods with the result that it develops intestinal troubles.

Bad sanitary surroundings lead to all sorts of troubles. It is truly said that the infantile mortality of a city or a town is a good index to the sanitary conditions as infants are more susceptible to adverse circumstances than adults. Therefore you will agree with me that the sanitary conditions of the town of Madras must be appalling when the infantile mortality is so high as 50%.

The child comes into the world perhaps injured, by the ignorance of the barber midwives, and also all sorts of horrible things are given to it by ignorant people. In a large number of cases the mother has neglected her state of health, during the time she has been carrying, the result is either a premature baby or an ill-nourished baby born into the world.

It often happens that though the mother is poor, ill-nourished and perhaps suffering from chronic illness, yet she is obliged to feed the child by the breast, as she cannot afford to feed it otherwise. So, you see that many deaths among infants can be traced to poverty and ignorance, either before or after the birth of the child.

I think, I have said enough to show you that something must be done; remedies therefore should be directed to avert these deaths. Let us therefore aim at :—

1. The raising of the moral and social standard, the breaking down of selfishness, of the hoarding of wealth, and caste prejudice; the working classes to have good wages, industries to be started, which afford work for many. This in its turn means better housing and the wherewithal to keep their family.

2. Proper dairies to be started for the maintenance of a pure milk supply. Popular health lectures to be given which will be useful to the more educated classes who can then pass on the knowledge to the illiterate and poor and so influence their lives for the better.

3. The help of Government is necessary in the erection and upkeep of Hospitals for Children and Women, in the provision of pure water supplies, and of improved sanitation.

4. The better classes must realise that the welfare of the nation depends upon the welfare of all the individuals—not on sections only.

5. Women must be educated, taught to cultivate healthy habits, to appreciate fresh air and to agree to the abolition of the *gosha* system. The women's physique must be attended to. Deformities and ills peculiar to women must be treated as they arise. Her supreme position in the family must be brought home to her and to her husband, her ideals for her children, her home and herself encouraged and directed aright and, above all, she should be taught how to bring up healthy children, e. g., how and when to feed them, etc.

The woman must train herself to be clean in her personal habits, specially during pregnancy. She must be taught that exercise is necessary, fresh air is necessary, that many of the aches and pains which she suffers from during the carrying time can be relieved if she consults a medical man.

Much of this infantile mortality is due to inherited disease or tendency to disease. Instructions must be given wisely and tactfully. Facts about pregnancy, labour, the care of herself after labour, and the care of her babies must be carefully explained.

It is very important to have a number of properly equipped institutions where midwives can be trained. If you don't train a midwife properly she very soon drifts back into the barber midwife's ways when she has left the institutions where she had been taught.

A Pre-maternity department must be started in Women's Hospitals. We have in this City several large Women's Hospitals but nothing has been done up-to now to develop pre-maternity departments in any of them.

It will be very necessary to establish Homes for those who need them during their pregnancy. There are unhappily a number of women who may be married or unmarried and who finding themselves pregnant and through their poverty unable to bear the burden of pregnancy are led by their unhappiness to many acts which cause sad disasters to both themselves and their children.

There are a large number of women who are quite unable to stay in Maternity Homes or Hospitals on account of the fact that if they leave their husbands and family there is no one to take charge of the home. These are the women who require to be visited in their Homes. Help and advice which in many cases will be gladly accepted by them in their houses must be given by ladies both European and Indian who will have to give up much of their time to this work.

Let us consider for a moment what we can do for the infants. We can teach the mother or those who are in charge "What is the food suitable for the Infants". We can advise her to take her child every now and then to a Children's Hospital to find out if it is going on satisfactorily. In some cases we have to persuade her to leave her child in the Baby wards of the Hospitals if the Doctors consider it necessary for recovery.

We must see that there is established a pure milk supply in all cities, towns and villages. Much is now left to the mercy of local milk-sellers who have no conscience, with the result that impure milk is supplied.

We must see that the sanitary surroundings of the infants are as perfect as possible, of course we must not be unreasonable and demand too much from the local authorities but we should certainly see that there is good drainage, a pure water supply, and

that those in charge of conservancy carts carry out their duty satisfactorily. Tanks and pools should be filled up and in crowded towns and cities there should be parks or open spaces where infants should be taken some time during the day.

We should instill into the minds of the poor and especially of those mothers who go out to work, that their children must be fed at proper hours of the day. Creches should be started where the poor can leave their children to be cared for and fed while the mother is working. These creches must be run by conscientious people who take a pride in seeing that the babies who are brought to them everyday are improving in health and size.

Municipalities and public bodies should insist upon buildings for the poor being erected on sanitary principles and let out at rates which the poor can pay ; over-crowding must be strictly prohibited.

There are many Indian ladies who often suffer from having nothing to do ; they should be asked to interest themselves in children's homes, pre-maternity departments, creches, children's hospitals, schools for mothers, etc. This is suggested to you because at present too much is left to Government to do. Indian ladies must realise that they must do more for the poor women and children in this country. These are things Government cannot do ; they must be done by voluntary effort.

Government aid for the poor who are pregnant is given at the Maternity Hospital to a few who ask for it. The system now adopted at the Maternity Hospital should be much more widely followed. In this city a number of centres should be started where pregnant women can receive a small sum of money every day in order to buy food. Aid given should be given discriminately, for it will often happen that the allowance given to a mother will not be used for the purpose it is intended for.

Women in factories and women working in large gangs for contractors are not properly looked after. Under the old Factory Act, where medical inspections were regularly made, there was some chance of seeing that women were not overworked and that those who were not capable of working were prevented from doing so. Now that Medical Inspection has been done away with, there are many cases in which great harm results to both mother and child through the abolition of that Act and it should be the duty of the

City Fathers to press for greater care being taken of women working in Factories than is done at present.

You have in this great city of Madras splendidly equipped Maternity Hospitals which can quite easily arrange to have pre-maternity departments. It is an extraordinary thing to me that there is no Children's Hospital well equipped and well staffed by doctors who make a speciality of children's diseases. In every large town in Europe there are Children's Hospitals or Children's Departments in the Great Hospitals. Let me suggest to the wealthy people of this town that the next great memorial that is to be erected in Madras be a "Children's Hospital".

During the last few years the attention of the public in England and Scotland has been drawn to the great loss to the community caused by the excessive infantile mortality and the ignorance of young mothers. This has resulted in some voluntary efforts being made for dealing with some of the causes of the evil.

In the British Isles, numerous stations of a modern order have been opened in the poorer quarters of the large cities under such names as The Baby's Welcome, Baby's Clinic, Infantile Consultations, Mother's Kitchen, Schools for Mothers, etc., etc. It has been found that a considerable degree of success has been attained by those Mission centres when worked by capable hands. Several have had to be enlarged and some the State has supported. A considerable measure of support from certain Government departments has led to an early State Scheme whose adoption has been urged throughout the British Isles. The Local Government Board issues Circulars showing the intention of the organised scheme of Baby culture, and how to start and work centres.

Each local authority works on two main lines of endeavour, firstly the visiting of all mothers in fact and, so far as possible, of all mothers in expectation.

Secondly, the establishment, in every area, of centres where the examination of mothers, babies and children under school age is carried out at regular intervals. The object of both visits and examination is to give advice in general on domestic hygiene and also to give advice on special cases. The possibility of simple medical treatment is held out as one of the advantages of the centres. If we are to have some sort of arrangement like

this in the Madras Presidency, we must work hand in hand with the Health Officer and those who are responsible for the notification of births, which must be compulsory. It is only by this means that an official visitor can be sent by the Medical Officer to such homes as he considers advisable. Visitors will see the mother and baby, give advice as to the care of the infant, take a general survey of the home and the cleanliness and sanitation thereof. They will urge the mother to take her baby as soon as possible to the "Children's Advice Department" or centre which is formed in the Town, and will teach her to consider this department a place where she may obtain knowledge about her infant. She will there find out how its health, how its height, how its weight, compares with the average, and there she will also receive advice on all the difficulties that occur in the bringing up of the little one. She should continue to visit this Clinic and should be pleased to perceive from the record that will be handed to her from time to time how her child has improved.

In this outline, I have endeavoured to show you the necessity for all mothers to know the general principles which underlie the successful rearing of healthy infants :

(1) Some of the causes giving rise to this appalling Infantile Mortality and Sickness.

(2) The obstacles to be met with while trying to teach the mother "How to bring up a healthy Family".

(3) The necessity for pre-maternity Departments and Women's Hospitals, where women can come for information, be examined and receive the necessary advice.

(4) The necessity for the establishment of Schools for Mothers, Children's Hospitals, Baby Homes and Creches.

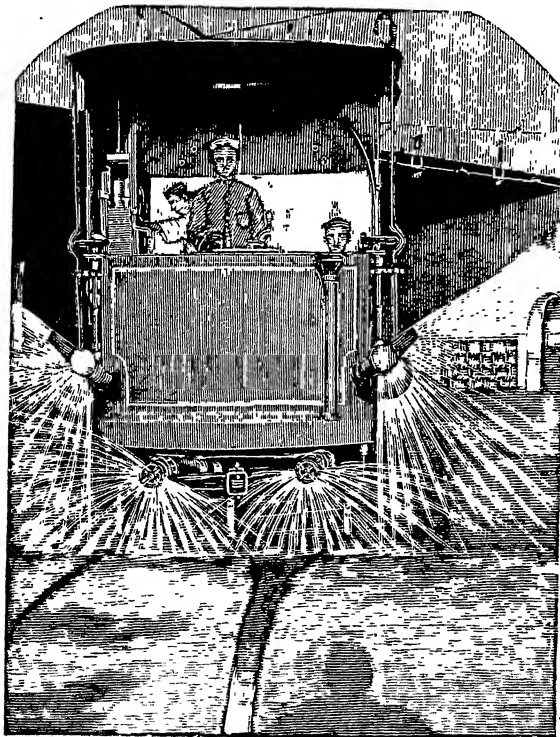
(5) The necessity for Indian Ladies and others to visit those women in their houses, who are unable to come to the Pre-Maternity or Children's Hospitals.

It seems to me very necessary to have nurses to visit the sick in their homes. These nurses should be attached to the large hospitals and be available at all times to go to the homes of the people.

A Tramway Motor Watering Car.

BY the courtesy of the Madras Electric Tramway Company, we reproduce below an illustration of a Tramway Motor Watering Car which is now in use in Madras. It is used for watering the tramway tracks and a portion of the Municipal roads.

The capacity of the car is 4,500 gallons and its cost Rs. 13,800. The car is fitted with a Centrifugal pump driven by a 20 B. H. P. Motor, which can fill the tank from any source of supply, and is arranged to take water from the tank and deliver to the spraying nozzles. The maximum width the car can water is 80 feet.



The car now waters 4 miles of Municipal roads to an average width of 50 feet twice a day, and the Corporation of Madras pay the Tramway Company Rs. 150 per mensem for

this work. All charges of maintenance, depreciation and repairs, including staff for running the car, are met by the Tramway Company.

It may be interesting to compare this expenditure with that previously incurred by the Corporation for watering the same area with hand-drawn watering carts. Fifteen carts were used on this length, and the following statement * shows the cost, per mensem, of the staff employed and other items of expenditure :

30 Watering Coolies at Rs. 6 each	Rs. 180-0-0
3 Watering Peons at Rs. 8 each	
with a famine batta of Re. 1	Rs. 27-0-0
Contingencies—Depreciation, Repairs, &c.	Rs. 93-0-0
	Rs. 300-0-0
	or Rs. 3,600 per annum.

It will thus be seen that the Municipality has made a good bargain resulting, in our opinion, in an appreciable improvement in street watering. We are glad to learn from the City Engineer that the Corporation is arranging with the Tramway Company for watering all Municipal roads on which the tramway lines are laid, with the Company's motor car. Mr. Coat's writes : " We are only awaiting suitable means of supplying water to the tank quickly enough ; 4,500 gallons is a fairly large quantity, and it takes a long time to fill the tank. Large water mains are not always available near to the tram line, and underground storage tanks may have to be constructed. Estimates and plans have been prepared. The utility of the watering car is only limited by the time it takes to fill it."

The Asphaltum Experiment in Calcutta.

THE problem of obtaining a durable, noiseless, resilient, sanitary and economical road-surfacing material for the business area roads has occupied the attention of the Corporation of Calcutta for a number of years. Ordinary

* We are obliged to Mr. James R. Coats, the Chief Engineer, Madras Corporation, for the particulars given in the statement.

water-bound macadam roads with fair traffic require the inconvenient annual or biennial extensive repairs. Stone-setting, although durable, is noisy and more suitable for dock areas and districts in which heavy cart traffic has chiefly to be provided for. Wood blocks make excellent roads, but unless treated with creosote hydraulically are insanitary and have been found liable to disturbance due to expansion under the climatic conditions of Calcutta, and are also expensive. Natural asphalt has not proved altogether satisfactory in Dalhousie Square East, and is a failure elsewhere. MacCabe's method of tar-mac surfacing during the last four to six years has so far proved to be an approach to satisfaction except for narrow-tyred bullock cart traffic ; but, not content, the Corporation are carrying out a further experiment with asphaltum and are now paving Chowringhee from between Dhurumtollah and Kyd Street, and also Dalhousie Square North, with this material.

Asphaltum consists of a mixture of asphalt, as supplied by the Standard Oil Company, with various sizes of stone and sand. The Standard Oil Company claims patent rights in asphaltum paving, and the work is being supervised by their representative who has constructed similar pavements in Madras and Hong-Kong, where it is claimed the material has stood equally hot seasons to that of Calcutta. The secret of the mixture is to so grade the stone and grit as to obtain the greatest quantity of wearing material in compact mass with the minimum of asphalt binding and with practically no voids. In order to obtain this result the material is graded and mixed in a steam power driven Cummer mixer purchased by the Corporation. The material to form the paving is stacked separately near the mixer at a site on a corner of the Maidan kindly granted temporarily by the authorities concerned, and the stone and grit are delivered roughly in the proportion required by coolies to a scoop in the mixer. From this scoop it is lifted by an endless bucket chain to a revolving drum, fixed over a furnace which heats the stone, grit and sand to a temperature of about 400°. On leaving the drum this material is lifted by an endless

bucket chain to a screening chamber where the stone grit and sand are screened and dropped into separate bins which have valves on their underside. Under these valves is a single bin fixed to a weighing machine having triplicate graded arms to which separate triggers are attached. A weight on each arm is fixed to the position required to exactly weigh the quantity of each class of stone for each mixing. As soon as the quantity required of No. 1 stone has been delivered into the bin, its valve is closed and the rigger pulled by a coolie operator, who then weighs No. 2 and No. 3 stone in succeeding operations into the same bin to form the proportioned stone aggregate for one mixture. The bottom of the bin is then opened and the material allowed to drop into a mixing chamber where cement and hot liquid asphalt of the required weight are then added and the whole mixed together by a series of revolving cast steel blades, the asphalt having been previously raised to a temperature of about 360° in a boiler attached to the apparatus. After a few revolutions of the blades this mixture is ready for the road and on a coolie opening a slide in the bottom of the mixer it is dropped into carts underneath and conveyed to the road on which it is to be laid. The material leaves the mixer at a temperature of about 360° .

The mixture used in Chowringhee is approximately in the following proportions by weight:—

	Per cent
Asphalt weighing 62 lbs. per cubic foot ...	5.75
Portland cement weighing 86 lbs. per loosely filled cubic foot ...	7.2
Stone No. 1 with a specific gravity of 2.85 broken to pass through a 1" mesh and retained on a $\frac{1}{2}$ " mesh screen ...	24.3
Stone No. 2 of the same specific gravity to pass through a $\frac{1}{2}$ " mesh and retained on a $\frac{1}{8}$ " screen	24.4
Stone No. 3 and grit of practically the same specific gravity and sand to pass through a $\frac{1}{8}$ " mesh screen ...	38.4

The cement is not intended for any cementitious properties, but rather as filler.

The method of spreading on the roads is as follows :—

After the road surface has been properly cambered and rolled, gauges some 10 to 15 feet in length of the required height, in the case of Chowringhee $2\frac{1}{2}$ inches, are laid in conveniently distant parallel lines longitudinally along the road. The material is then roughly spread between these gauges and struck off with straight edges drawn over them leaving the material about $2\frac{1}{4}$ to $2\frac{3}{4}$ inches thick. After the spaces between the gauges are filled and struck off, the gauges are drawn forward along the road for a repetition of the operations, the nullahs left being filled in and levelled off by a rake. The material left behind is first compressed by a hot hand roller weighing about 600 lbs., within which is maintained a coke fire. The paving as it cools is finally rolled by 8 to 10-ton rollers until it is compressed to about 2 inches in thickness. The surface is finished off with a thin coating of hot asphalt of a finer grade squeegeed over it, over which is spread a thin coating of sand. The paving is ready for traffic 24 hours after it has been laid.

Some little difficulty was at first experienced in training the labour to work the mixer and lay the asphaltum, but later the material was turned out, spread, and finished off at the rate of from 1,000 to 1,200 square yards per day. The paving of Chowringhee, which is about 50 feet wide, has progressed at the rate of about 200 feet lineal per day.—*Indian Engineering.*

Disinfection.

Instructions for Disinfection in Infectious and Contagious Diseases.

PERSONAL effects, such as rags, bandages, papers and other articles without value, which, in the opinion of the Health Officer, are deemed likely to carry infection should be destroyed by fire.

2. Under-clothing, bedding, wearing apparel, mattresses, carpets, etc., which are contaminated or suspected, and other articles to be disinfected, should be exposed for 15 minutes to saturated steam—under pressure if possible—at a temperature of not less than 100°C (212°F.), care being taken that the steam shall reach all parts of each article to be disinfected.

3. *Disinfecting Solutions.*—(a) Solution of corrosive sublimate of one part in 1,000 with the addition of 2 parts in 1,000 of hydrochloric acid or 160 grains of chloride of soda in one gallon. The solution should be coloured with aniline dye or indigo. It should not be placed in metal vessels.

(b) A 5 per cent. solution of pure crystallized carbolic acid, or 5 per cent. of crude commercial carbolic acid free from tar oils in a warm solution of soft soap.

(c) Freshly-prepared lime-wash.

(d) Such proprietary tar acid compound as the Health Officer may approve of.

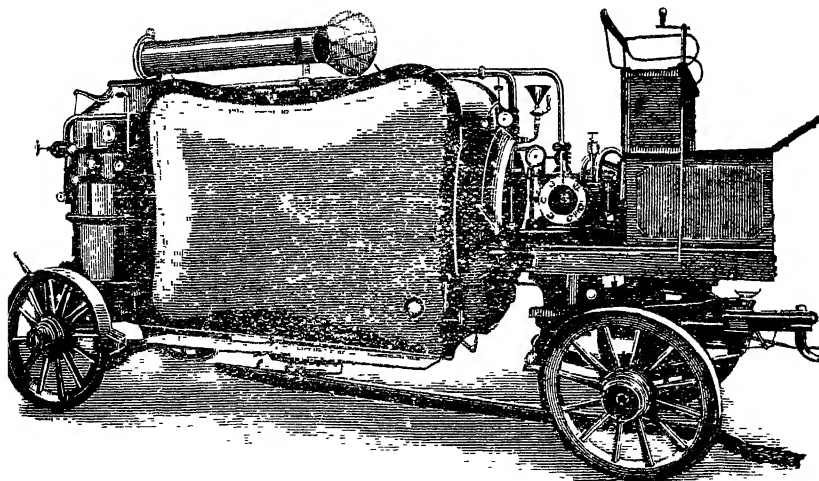
4. *Special instructions to be observed in the employment of disinfecting solution.*—The linen, clothing and articles soiled by the excreta of patients should be soaked in the solution of corrosive sublimate. The solution of pure carbolic acid and the solution of soap and carbolic acid are equally suited to the purpose. The articles should remain in the solution for at least six hours.

Articles which cannot be subjected to the temperature of 212°F. without injury, as leather goods, wooden articles stuck together with glue, felt, velvet, silk, etc., should be washed with a disinfecting solution; coins can be disinfected with the solution of soap and carbolic acid. Persons engaged in nursing the sick should wash their hands and faces with one of the carbolic solutions. The carbolic solutions will be useful more particularly for disinfecting articles such as metal, or instruments, which can neither be subjected to a temperature

of 212°F. nor placed in contact with corrosive sublimate. Chlorinated lime is particularly recommended for disinfecting excreta. Expecterated matter should be burnt.

A Travelling Disinfecter.

We illustrate herewith the apparatus for a German Municipal undertaking which it seems might be imitated on this side of the water. It is nothing less than a perambulating disinfecting plant in operation in the city of Charlottenburg.



[With acknowledgments to the Scientific American.]

The disinfection accomplished by this device is not to be confused with house fumigation; in fact, the machine is designed to be used only on such small articles as can be placed inside the large receptacle. In this they are exposed to steam at a pressure of one-tenth to two-tenths atmosphere, and at a temperature of 105 deg. cent. It will be understood that at this temperature there is no soaking of the articles treated, but that all germ life must be destroyed.

Such an apparatus would indeed be a valuable adjunct of the health inspection service of our large cities.

Economics of the Prickly Pear.

AN elaborate report has been made by a committee which was appointed by the Government of Queensland in 1912, to visit countries in which prickly pears are abundant in order to ascertain whether there exist in such countries any natural enemies of these plants that might be utilised for their destruction in Queensland, and also the possibilities of using the prickly pear for commercial purposes. The Committee travelled widely over the world, and its report constitutes a valuable reference book on the subjects investigated. The introduction into Queensland of several species of insects destructive to prickly pears is recommended. It is also proposed to introduce one fungus disease, *viz.*, the "anthracose," "shothole," or "black rot" malady, caused by *glocosporium tunatum*. In warm moist weather, this organism causes a considerable and rapid destruction of the young segments. In Argentine the fungus *sclerotum* (or *sclerotima*) *opum tiarum* is destructive to various cacti, but its properties are not yet sufficiently well known to warrant its introduction. The use of certain plants that overgrow and choke out the prickly pear is also suggested. Utilisation of the prickly pear of course tends to limit its spread. The writers point out that the fruit of certain species is available for human food. The stems and joints have been used in many countries with other rations as fodder, and this food seems to augment milk production. The prickly pear has been used as a soil fertilizer especially in India, and as a source of alcohol in Spain and Italy. Several other modes of utilisation are enumerated.—*Scient. Amer.*



Grants to District Boards (Bengal.)

The following statement shows, for each District Board in Bengal, the gross Public Works cess, the charges for collection thereof, and the augmentation grants, for the last three years, and the average annual Government Grants withdrawn from 1913-14:—

DISTRICT BOARDS.	1913-14.				1914-15.				1915-16.				Average annual Government grants with- drawn from 1913-14.
	Gross Public Works Cess.	Charges for collection of Public Works Cess.	Augmenta- tion grants	Gross Public Works Cess.	Charges for collection of Public Works Cess.	Augmenta- tion grants	Gross Public Works Cess.	Charges for collection of Public Works Cess.	Augmenta- tion grants				
Burdwan	2,03,765	2,472	Rs. 51,833	Rs. 2,65,687	Rs. 2,339	Rs. 53,711	Rs. 2,63,341	Rs. 2,376	Rs. 40,293	Rs. 33,669			
Birbhum	82,599	232	15,756	78,567	219	18,313	82,359	236	16,671	17,332			
Bankura	56,142	126	10,944	58,114	136	12,841	51,519	193	11,334	31,538			
Midnapore	2,03,661	2,398	39,977	2,06,054	2,462	49,722	2,02,638	2,431	40,301	38,419			
Hooahly	1,11,094	1,624	20,312	1,08,020	1,910	24,092	1,07,414	1,930	21,860	29,745			
Howrah	55,547	812	10,106	54,010	955	12,277	50,270	965	10,930	14,263			
24-Pargana-	1,79,910	6,607	30,907	2,17,723	2,406	36,346	2,41,777	1,755	33,746	27,986			
Nadia	95,248	5,207	16,156	87,532	5,471	20,078	1,06,316	1,790	17,081	6,876			
Murshdabad	91,314	581	18,515	84,417	609	22,001	92,676	582	18,267	6,064			
Jessore	71,031	5,232	19,726	1,06,401	2,574	21,469	1,11,131	1,267	12,307	11,533			
Khulna	1,19,850	5,565	23,586	1,18,765	6,519	27,709	1,15,160	3,418	22,053	29,931			
Daco.	1,21,175	852	22,324	1,32,012	919	27,658	1,23,863	1,194	24,250	31,592			
Mymensingh	2,77,478	309	52,578	2,49,461	330	63,558	2,74,213	379	56,227	27,362			
Faridpur	31,585	844	14,608	94,150	834	15,973	64,850	854	16,212	27,471			
Bakarganj	2,23,316	4,134	41,869	2,23,654	6,693	57,007	2,31,801	8,077	44,089	30,846			
Chittagong	1,30,641	453	24,249	1,22,407	540	30,016	1,20,571	548	26,239	10,946			
Tippera	1,39,796	6,231	22,608	1,28,383	4,267	26,960	1,28,531	319	25,213	34,261			
Noakhali	1,08,303	747	20,052	1,11,822	691	26,705	1,10,441	718	21,669	17,182			
Rajshahi	1,05,485	655	20,017	1,04,310	668	24,636	1,05,409	2,675	21,151	11,657			
Dinaipur	1,06,673	4,127	21,041	1,05,357	2,773	24,658	1,16,272	365	19,984	12,875			
Jalpaiguri	31,751	69	15,988	33,492	68	19,359	1,09,078	69	16,572	4,975			
Rangpur	1,69,508	848	31,969	1,63,269	1,050	39,273	1,77,316	1,232	34,052	12,625			
Bogra	65,421	210	10,546	62,690	205	12,485	66,666	229	13,193	3,900			
Fabna	82,850	363	15,641	80,319	355	13,166	83,132	290	16,557	11,933			
Malda	56,319	241	8,866	54,205	358	11,019	56,902	278	11,334	14,499			
Darjeeling Road Committee.	27,558	1,025	4,622	23,656	..	5,323	27,304	..	5,389	..			

Ruppes 25,000 was also allotted to the Birbhum District Board in 1914-15 from arrears of the augmentation grant which were made available this year.

Ruppes 82,666 was also allotted to the Burdwan District Board in 1914-15 from arrears of the augmentation grant which were made available this year.

Ruppes 2,51,546 was also allotted to the Tippera District Board in 1914-15 from arrears of the augmentation grant which were made available this year.

Municipal Waterworks in Bombay.

THE following Municipalities have constructed a system of waterworks. Except in Dhulia, Poona City, Nasik, Pandharpur and Ratnagiri, all the Municipalities manage their own waterworks.

<i>Sind</i>	9. Jalgaon.	<i>Southern Division.</i>
1. Karachi.	10. Talegaon	21. Nipani.
2. Hyderabad.	Dabhade.	22. Rajapur.
3. Sukkur.	11. Jejuri.	23. Dharwar.
	12. Lonavla.	24. Hubli.
<i>Northern Division.</i>	13. Satara Town.	25. Alibag.
4. Ahmedabad.	14. Karad (not	26. Pen.
5. Surat.	complete)	27. Panwel.
6. Bhiwandi.	15. Sholapur.	28. Roha—Ashtami.
7. Thana.	16. Sarsi (not	29. Vengurla.
	complete).	30. Chiplun.
<i>Central Division.</i>	17. Dhulia.	31. Bijapur.
8. Ahmednagar.	18. Poona City.	32. Ratnagiri.
(new works not	19. Nasik.	
complete).	20. Pandharpur.	

Note.—In Dhulia, the works are in Government charge for a period of three years by arrangement with the Municipality.

The water works at Ratnagiri were formerly in charge of the Municipality but as that body was not able to keep the works in proper order, the Government took them over in their charge in 1910 and improved them and also relieved the Municipality of the debts incurred by that body on account of these works.

The water works at Pandharpur have been entirely constructed at Government expense and Government consider it desirable in the interests of the general body of tax-payers that the management and control of the new pumping installation should remain in charge of the Public Works Department.

In the case of Poona City, Nasik and Bijapur, having regard to the large grants-in-aid given by Government towards these works Government consider it advisable to retain the management of the installations until there is a reasonable assurance that the Municipalities are in a position to manage them efficiently.

Water Supply and Drinage Schemes in the Punjab.

SARGODHA WATER-SUPPLY EXTENSION SCHEME.—Government have accorded administrative sanction to the Sargodha Water Supply Extension Scheme at an estimated cost of Rs. 1,20,000.

JULLUNDUR DRAINAGE SCHEME.—Government have accorded administrative sanction to the Jullundur Drainage Scheme at an estimated cost of Rs. 4,98,473, provided that the grant-in-aid of one lakh made by the Sanitary Board this year and the promise of a similar amount next year is made on condition that the Municipal Committee takes early action to raise the balance of the cost of the scheme by a loan, and increases taxation to cover the interest and provide a sinking fund to repay the loan.

ROHTAH DRAINAGE SCHEME.—Government have accorded administrative sanction to the Rohtah Drainage Scheme at an estimated cost of Rs. 1,72,831.

Sanitary Boards Proceedings.

[Punjab.]

VOLUNTARY SANITARY ASSOCIATIONS.—With reference to Government's Letter No. 43 San.—I, dated the 15th June 1916 asking for definite proposals for the improvement of sanitation in co-operation with the Society for Promoting Scientific Knowledge, the Sanitary Board have finally resolved that a grant-in-aid of Rs. 13,750 be recommended to Government, being half the sum of the total cost required to build lecture and class rooms for the Society for Promoting Scientific Knowledge in lieu of Rs. 12,500—the rough estimate made at the last meeting—and that a further grant of Rs. 6,500 be sanctioned for furniture and equipment. The plan of building proposed by the Society which provides for class rooms and lecture rooms below and a hall suitable for magic lantern

exhibitions and larger gatherings above is approved by the Sanitary Board. The Board have further resolved to recommend that the annual recurring grant of Rs. 200 given to the Society by Government be increased to Rs. 1,500 in order to enable the Society to expand and to take up new work in connection with the definite direction in which Government is anxious for it to turn its activities. Voluntary workers and lecturers are expected to serve without pay, but it may be necessary to meet their out of pocket expenses.

The Board note that the Government of Bombay gives the amounts to a similar Society which has done much less work than the local society and which in addition receives a considerable grant from the Municipal Corporation of Bombay.

AMBALA WATER WORKS.—With reference to the application for the approval, administrative sanction and grant-in-aid of the Ambala Water Supply Extension Scheme, the Board resolved that “the scheme be approved and administrative sanction accorded. The Board is prepared to give a substantial grant to the scheme during the current financial year. the amount to be determined on receipt of the application for grant-in-aid on the prescribed form.”

The Board further resolved to authorise the President to sanction the grant-in-aid up to the total cost of the scheme on receipt of the application for grant-in-aid.

Sanitary Inspectors Association.

THE Report of the Trichinopoly Sanitary Inspectors Association for the half year ending December 1916 is a record of much useful work done by the Association. Eleven meetings were held and papers on various sanitary subjects, such as drainage, street conservancy, malaria, sanitation of markets, etc., were read and discussed. At the General Meeting held on the 27th December 1916, Dr. Hesterlow delivered an interesting lecture on “Public Health,” chiefly dealing with the sanitation of houses and the importance of keeping houses and their surroundings in a clean and

sanitary condition. We commend the work of the Association to the Sanitary Inspectors in other Districts and would urge the formation of similar Associations in every important centre, all the District Associations being affiliated to a Central Institution.

Municipal By-laws.

SALE OF MEAT (CAWNPORE).—The following by-laws made by the Municipal Board of Cawnpore, under sections 298F (a), (b), (c) and J (a) and E(b) and 299(1) of the United Provinces Municipalities Act, 1916, have been confirmed by the Local Government:—

1. *Definition.*—In these by-laws, “meat” means the flesh of horned cattle, goats, swine or sheep intended for human or animal consumption.

2. No person shall sell or expose for sale any meat within the limits of the municipality, unless he has been granted a licence in this behalf.

3. The executive officer shall be the licensing officer for the purposes of these by-laws.

4. A licence granted under these byelaws shall be subject to the following conditions:—

(1) No one shall sell or expose for sale the flesh of any animal which has died from a natural cause, or any meat which has been blown up or artificially stuffed.

(2) No one shall place any meat intended for sale in or on a dirty basket or board, or expose such meat without covering it with a clean cloth.

(3) The shop for the sale of meat shall be either a municipal meat shop or a shop constructed in accordance with the plan approved by the board.

(4) The floor of the shop must be thoroughly washed every day before the shop is closed.

(5) The shop itself must be whitewashed once a month.

(6) The licensee shall not sell meat at any place other than that mentioned in the licence nor shall he sell meat of any description other than that specified in the licence.

(7) The licensee shall comply with such orders as may be issued by the health officer. A breach of any of these conditions shall involve forfeiture of the licence.

5. On receipt of an application for a licence, the licensing officer shall either grant the licence or, for reasons to be recorded, may refuse to grant it.

6. The licensing officer may cancel or suspend a licence for breach of any of the conditions specified in byelaw 4.

7. An appeal shall lie to the health committee from an order of the licensing officer refusing or cancelling or suspending a licence: provided that the appeal is made within ten days of the date of the receipt of the order.

Under section 298 (J) (a).

8. No one shall carry meat through any street or public place except in a clean receptacle and covered with a clean cloth.

Under section 298 E (b) and F (a), (c).

9. No person shall hawk meat in any public street or place within the municipality.

Penalty.

In exercise of the power conferred by section 229 (1) of the Act, the board directs that any breach of the provisions of bye-laws 2, 8 or 9 shall be punishable with fine which may extend to fifty rupees, and when the breach is a continuing breach, with a further fine which may extend to five rupees for every day after the date of the first conviction during which the offender is proved to have persisted in the offence.

Government Orders & Notifications.

[United Provinces.]

MALARIA AND EXCAVATIONS.

THE following circular has been addressed by Government to all Chairmen of Municipal Boards in the United Provinces:

I am directed to invite a reference to G. O. No. 208/XVI—1, dated the 30th March, 1909, in connection with the prevention of malaria by the reduction of the number of breeding grounds for mosquitoes. One of the steps to be taken was the filling up or draining of existing pits, and it was also suggested that in future care should be taken to prevent the formation of any such excavations.

2. From the information now before the Government, it is evident that many Municipal Boards have displayed little interest in the carrying out of this important measure which, if allowed to remain in abeyance, will constitute a grave source of danger to the public health. The Provincial Sanitary Board have accordingly reconsidered this matter and have resolved that municipal boards be requested to consider the desirability of prohibiting the making of fresh borrow pits within municipal limits.

3. The reason why municipal boards have done but little to comply with the directions issued in Mr. Taylor's letter of the 30th March, 1909, is possibly the limited powers conferred on boards in this respect by the Municipal Act of 1900. Sections 298-I(g), 269 and 284, however, of the new Municipal Act of 1916 give extensive powers to municipal boards for the prevention of new excavations of an insanitary type including railway borrow pits, and also for the rectification of such excavations as already exist. I am therefore to say that Government expects that municipal boards will now take the necessary steps for dealing with existing excavations and prohibiting the making of fresh ones in the interests of sanitation and public health. [No. 3846/XI—437 E, dated 28th September 1916.]

[Madras.]

RULES FOR REGULATING TOWN EXTENSION SCHEMES.

The following rules for regulating schemes for the extension of towns undertaken by municipal councils, and building operations within the same, have been issued under cl. (n) of sub-section (1) of section 250 of the Madras District Municipalities Act, 1884 :—

RULES.

(1) *Provision of accommodation to precede eviction.*—When the opening up of a congested area in any municipality involves the eviction of any of the inhabitants, suitable sites for house building or houses wherever possible shall be offered elsewhere to the inhabitants in partial or full compensation for the property acquired.

(2) *Selection of sites.*—In selecting a site for an extension, the following considerations should be kept in view :—

(a) It should be accessible and convenient to the people concerned ;

(b) it should be adequate in extent, allowing space for all the requirements of a suitable lay-out as defined in rule (3) , and where possible for future expansion ;

(c) where possible, it should be elevated and open and should have a sufficient slope for proper drainage ;

(d) the sub-soil should be as pervious as possible, gravel, sand or light loam being preferred to clayey soils, and the sub-soil water should not rise too close to the surface.

(3) *Laying out the site.*—In laying out the site, the following matters should be provided for :—

(a) Main and secondary streets and their connection with those of the parent town :

(b) the reservation of suitable open spaces and of sites of any buildings that are likely to be required for the convenience for the public or any section thereof ;

(c) public latrines ; these should be as unobtrusive as possible consistently with convenience ;

(d) public wells, where no piped water supply is available ; these should be remote from cesspits or other sources of contamination ; and

(e) sub-division, when necessary, into separate blocks suitable for people of different occupations or classes.

The provision of streets, drains, wells and latrines should ordinarily be put in hand concurrently with the development of the site.

(4) *Streets*.—The minimum width for main streets should ordinarily be 40 feet exclusive of lateral drains. A suitable width for secondary streets is 30 feet. The roadway should be metalled at least to the extent of half its width. Provision should be made for avenue trees at the sides. Stormwater drains of oval section should ordinarily be provided at the sides. Cross streets should be provided at intervals of not more than 660 feet.

(5) *Conservancy lanes*.—Ordinarily, conservancy lanes 10 feet in width exclusive of lateral drains should be formed along the backs of houses to enable the conservancy carts and scavengers to enter for the purpose of cleaning backyards and for the laying of drainage pipes in the event of the town being provided with underground drainage. In the case of houses with gardens, however, provision may be made for giving the sweeper access from the main street along the side of the compound. Conservancy lanes also must be provided with side drains of oval section.

(6) *Plotting of sites*.—After making provision as above the remainder of the land available should be plotted into house-sites. In plotting house-sites, the means and occupations of the people to be provided for, must be considered; a site of 2,400 square feet should ordinarily be the minimum. It is unnecessary to aim at rigid uniformity of size or shape if more convenient plots can be secured otherwise. The average size may also reasonably be different for main and minor streets.

(7) *Disposal of house-sites*.—House-sites disposed of by municipal councils should ordinarily be sold by auction which may be open to the public generally or confined to the members of the castes for which the particular extension is intended.

(8) *Application to build*.—Within six months of the completion of the sale, the application for construction must be made.

Every application to construct, reconstruct, or extend a building shall, in addition to the particulars required by section 180 of the District Municipalities Act, be accompanied by—

(a) *Site plan*.—A site plan in duplicate drawn to a scale of not less than one inch to thirtythree feet showing—

(i) the boundaries of the site and, if the locality has been surveyed, the number of the survey field or sub-division in which it stands ;

(ii) the name or description and the width of every street adjoining the site, and the position and use of adjacent buildings ;

(iii) the area to be occupied by the proposed building :

(iv) in the case of an extension, the nature and use of all existing buildings on the site and the relative position of the existing and proposed building ;

(v) the nature of the ground on which the proposed building is to be erected, whether made or natural, whether rocky, clayey-gravelly, sandy or mixed as the case may be ; and in the case of made ground, the time when it was so made and the materials used in making it ; and

(vi) the position and dimensions of proposed latrines, urinals, drains, cess-pools, stables, cattle-sheds, cow-houses, wells and other appurtenances of the building ;

Provided that if the estimated cost of the construction, reconstruction or extension is Rs. 100 or less, it shall be sufficient for the site plan to show, without scales, the size of the proposed building and its position on the land, and the position of the land with reference to adjacent buildings or lands.

(b) *Plan of proposed building*.—A plan of the proposed building in duplicate, drawn to a scale of not less than one-eighth of an inch to a foot showing—

(i) the plan of each floor with sections and elevations in the same scale ;

(ii) the levels of the foundation and lowest floor or plinth, with reference to the level at the centre of the principal adjacent street and the level of the site ;

(iii) the depth and thickness of foundations ;

(iv) the height and thickness of the plinth or basement walls and of the walls above ;

(v) the thickness of the floor or floors and the dimensions and structure of the roof ;

(vi) the number of doors, gates or windows to be constructed, with an indication as to which of them open outwards in any street.

(c) *Specification*—A specification showing—

(i) the method of construction and the nature and description of the materials to be used including the dimensions of all beams, posts, pillars and columns ;

(ii) the manner in which the surface drainage of the land will be disposed of ;

(iii) the means of access to latrines for scavengers ;

(iv) if the building is intended to be used as a dwelling house for two or more families, or as a place for carrying on any trade or business in which more than twenty persons may be employed, or as a place of public resort, the means of ingress and egress.

Provided that clauses (b) and (c) above shall not apply to buildings of an estimated cost of Rs. 500 or less.

N. D.—If it is intended to use the building or part thereof for any of the offensive or dangerous trades specified in section 188 of the District Municipalities Act or as a factory, stable, cattle-shed or cow-house or as a place for the housing of goats, pigs, sheep or poultry, the fact must be expressly stated.

(d) *Application for permission to cover side drain*—If it is proposed to place a covering over the side drain to give access to the house a separate application to the Municipal Council to erect such covering.

(9) *Plan to be approved.*—Construction shall not be commenced until the plan of the building has been approved or unless the time limit fixed by section 180 of the District Municipalities Act has expired and the Municipal Council has passed no orders granting or refusing a license.

(10) *Time limit for building.*—In the absence of orders of the Municipal Council to the contrary, construction must be completed within 18 months of the date from which commencement is permissible under the preceding rule.

(11) *Only one house may be built on each site.*—No more than one dwelling house shall be built on any one site nor shall any site be sub-divided.

(12) *House to face the street.*—When the houses are continuous, each house should directly face the street. It shall not be permissible to construct a building for separate occupation without exclusive access to the same from a public street.

If it is desired to erect such a building on an area not contiguous to an existing public street, a road shall be laid out to give access to it of such a width and construction as the Municipal Council shall approve.

(13) *Area to be covered by buildings.*—There shall be in the rear of every domestic building an open space of at least 10 feet extending along the entire width of the building and belonging exclusively to the building unless the back of the building abuts on an open square or the like of not less than 20 feet in width which is dedicated to public use and is consequently not likely to be built upon. Where, however, the site is of such a nature that it is impracticable to provide an open space as prescribed above, the Municipal Council may relax the rule to such extent as may be necessary, but in no case shall the area occupied by masonry buildings or verandahs exceed two-thirds of, and in the case of buildings of two or more floors, one-half of, the total area of the site.

In the case of existing premises which it is proposed to rebuild and which do not at present comply with this rule, it shall be permissible to vary the proportion and position of open space—but unless this rule is complied with no increase in the total cubic contents of the building will be permitted.

(14) *Back to back houses prohibited.*—The construction of houses back to back with no intervening space is prohibited.

(15) *Circumstances in which thatch is allowed.*—No house or out-house shall be constructed with thatch except in special localities selected by the Municipal Council with the approval of the Collector.

(16) *Ventilation.*—The Municipal Council shall require such provision for ventilation as it may consider proper with reference to the circumstances of each case. Ordinarily, the doors and windows opening into the external air of every room in a domestic building which is intended for habitation should cover a space equivalent to not less than one-fifth of the floor space of the room they serve to ventilate.

(17) *Precautions against damp.*—Provision must be made in all buildings for keeping out damp. Ordinarily, a masonry plinth of

8" above the street level is the best means of doing this. A damp proof course is also desirable.

(18) *Height of walls.*—The main walls of the house shall not be less than 10 feet high. The eaves must not be less than 8 feet above the ground.

(19) *Access to backyards.*—All backyards of houses must be provided with gateways or doorways so as to give access to the scavenger and to the municipal inspecting officers.

(20) *Drains and privies.*—Every building shall be provided with such drains and privies as the Municipal Council may consider necessary. The privies must be situated at such a distance from any dwelling house or from any well, spring, tank, or stream of water used or likely to be used by men for drinking or domestic purposes or for manufacturing drinks for the use of men, as may be approved by the Municipal Council. Where a bath room or bathing platform is provided, the floor should be impervious and provision should be made for carrying off the water to the nearest drain.

(21) *House drainage.*—Where a conservancy lane is provided, all sullage water from the house and its backyard shall be led into the drain in the conservancy lane and not into the drain in front of the house which is provided to carry off storm-water.

(22) *Cattle-sheds.*—All cattle-sheds should have impervious floors and be properly drained.

(23) *Walls or fences.*—All sites shall be enclosed by compound walls or fences of such description as the Municipal Council may prescribe.

(24) *Excavations prohibited.*—Except in so far as may be necessary for the excavation of foundation or wells or the levelling or sloping of the ground no purchaser of a house-site shall remove earth from the site for building or any other purpose so as to leave hollows in it.

(25) *Conditions of sale-deed.*—Every notice of sale of a building-site by the Municipal Council and every sale-deed in respect thereof shall embody rules (8) to (24) supra as conditions of sale which shall be binding on the transferee, his heirs, assigns and their

successors, and shall also contain a condition that if the purchaser fails to complete the construction of the house as required by rule (10), his title to the site shall cease and determine and the site shall revert in the Municipal Council and the purchaser shall be entitled only to a refund of 90 per cent. of the price originally paid by him to the Municipal Council. In case of a breach of any of the rules (11) to (24) the Council shall call upon the owner of the plot to make the necessary alterations or provision within a period of three months, in default of which the Municipal Council shall be authorized to make them itself and recover the cost from the owner.

Legislative Intelligence.

[Imperial Parliament.]

MILK FOR CHILDREN.

MR. Alden asked the President of the Local Government Board when he will be in a position to introduce the Bill which he promised, to deal with the question of nursing and expectant mothers, and the provision of milk for little children.

Mr. Long: I hope to introduce legislation shortly.

[Bihar and Orissa.]

LOCAL BOARDS AND SCHOOLS.

The Hon'ble Rai Bahadur Dvarika Nath asked if the Government will state the classes of schools on which alone local bodies can exercise control and on which alone they should incur expenditure.

Government replied :—District Boards are authorised to exercise control over, and incur expenditure on, the following classes of schools :—

(a) Middle Vernacular Schools for boys and Primary Schools for boys or girls directly managed and maintained by a District Board or receiving grants from it ;

(b) Primary Schools receiving stipends from a District Board;

(c) Middle Vernacular Schools for girls and Middle English Schools already in existence until they are taken over by Government.

District Boards may not incur expenditure on other schools except with the sanction of the Local Government. Municipalities are required to make adequate provision for primary education before directing any portion of their funds to Secondary Schools. Subject to this condition, they can maintain or aid schools of any class. They exercise control over all schools which they maintain or aid.

VICE-CHAIRMEN OF DISTRICT BOARDS.

The Hon'ble Rai Bahadur Dvarika Nath asked which of the District Boards, if any, have still got official vice-chairmen and the reasons for the same.

Government replied:--The three District Boards of Ranchi, Shahabad and Champaran have officials as vice-chairmen. In Ranchi the appointment is purely temporary. In Shahabad the reconstitution of the Board is in course of progress and when completed a non-official vice-chairman will be elected. The District Board of Champaran are being asked to elect a non-official vice-chairman now.

MINIMUM EXPENDITURE ON EDUCATION BY DISTRICT BOARDS.

The Hon'ble Rai Bahadur Dvarika Nath asked for a statement showing the minimum amount ear-marked for expenditure by each District Board on the following classes of schools as well as the total minimum amount fixed by Government to be spent on education by the District Board concerned.

Government replied:--No minimum is fixed by Government for expenditure by District Boards on any particular class of schools. A statement is laid on the table showing the total minimum amount

fixed by Government to be spent on education by each District Board during 1915-16 as well as the details making up that minimum.

Name of District Board.	Actual Expenditure in 1911-12.	Ten per cent. of grant in lieu of public works cess in 1913-14, <i>i. e.</i> , penultimate year.	Special Grants (excluding the equilibrium grant) in 1915-16.	Minimum Standard of Expenditure in 1915-16. (Total of Columns 2-4).
1	2	3	4	5
	Rs.	Rs.	Rs.	Rs.
Patna ...	37,022	22,971	30,241	90,234
Gaya ...	62,370	26,709	16,322	105,401
Shahabad ...	50,501	17,716	18,431	86,648
Saran ...	44,824	18,528	34,793	98,145
Champaran ...	30,273	9,363	17,314	56,950
Muzaffarpur ..	60,476	15,524	21,003	97,003
Darbhanga ...	61,083	18,633	15,349	95,065
Monghyr ...	47,710	22,298	19,494	89,502
Bhagalpur ...	39,783	21,736	17,923	79,442
Purnea ...	34,281	8,110	16,406	58,797
Hazaribagh ...	33,989	8,879	15,026	57,894
Ranchi ...	35,768	3,982	21,715	61,465
Palamau ...	20,910	3,930	11,449	36,289
Manbhum ..	37,754	17,983	18,271	74,008
Cuttack ...	50,045	8,767	72,470	1,31,282
Balasore ...	33,741	3,959	55,764	93,464
Puri ...	24,741	3,583	40,002	68,326

CONSTITUTION OF VILLAGE UNIONS.

The Hon'ble Rai Bahadur Purnendra Narayan Sinha asked if it was in the contemplation of Government to constitute Village Unions in all Districts, empowered to record suggestions regarding rural roads, agriculture, co-operation and education and if the Government proposed to provide for the consideration of such suggestions through the existing machinery?

Government replied :—The constitution of Village Unions is defined in Chapter II of Part I and the scope of their duties and powers in Chapter III of part III of the Local Self-Government Act. It is not proposed to give Village Unions the extended powers suggested by the Hon'ble member. Any suggestions made by Village Unions through District Boards to the Commissioner of the Division will receive careful consideration.

[Bombay.]

LOCAL BOARDS.

The Hon'ble Mr. G. M. Bhurgri asked if the Government proposed to bring forward any legislation to give effect to the recommendations made by the Committee appointed by the Government of Bombay to consider and report on the question of the extension of the principles of Local Self-Government in regard to Local Boards?

Government replied that a Bill to provide for the increase of elective members of district local boards and the formation of special constituencies was under their consideration.

VILLAGE PANCHAYATS.

The Hon'ble Mr. G. M. Bhurgri asked whether, with reference to the recommendations made by the Decentralisation Commission in regard to Village Panchayats, the Government have considered the question and what steps they proposed to take?

Government replied that the question was under consideration but that no action was possible until the financial position improved and the question of amending the Local Boards Act was settled.

POONA CITY DRAINAGE WORKS.

The Hon'ble Mr. B. S. Kamat asked :—

(i) Has the attention of Government been drawn to the complaints in the Poona City Vernacular press during September last regarding the execution of Poona City Drainage Works at present under construction, in the matter of alleged defective house-connections, deviations from original plans, and a large excess over the total estimated expenditure for the drainage scheme?

(ii) Will Government be pleased to state (a) whether Government have investigated how far the complaints are justifiable; (b) whether the anticipated excess in expenditure was brought to the notice of the City Municipality by the Executive Engineer for Drainage; (c) if so on what date? and (d) how many times did the Executive Engineer attend the Municipal meetings since his appointment to the Board during the present triennium?

Government replied :—

(i) Yes.

(ii) (a) Yes. The defects found by the Municipality consist of :—

(1) one manhole (out of 1,000 constructed), in which a brick bund had been purposely made and left with a view to stop leakage from sub-soil water;

(2) a few house-connections which had become blocked up through the neglect of municipal sweepers not cleaning them regularly;

(3) six defective house-connections, (out of some 6,000) which were put right on discovery.

The scheme on the whole appears to be working satisfactorily but there are here and there difficult house-connection questions which require careful consideration which it is understood they are receiving. In all schemes of this nature constant attention and occasional repairs are necessary.

The drainage works have been carried out according to the design sanctioned by Government, with the exception of (1) an improvement and addition to the Balancing Tank, (2) shortening and straightening up the alignment of the 14" sewage pumping main and (3) a slight modification in the design of the pail depots, to suit both types of night soil and sullage carts at present in use by the Municipality. These changes are unimportant and do not affect adversely the convenience of the people.

The excess expenditure was mainly due to the excess payment on account of land compensation and to the enhanced cost of cast-iron pipes (due to strikes in England in 1911), the advices of adjustments for which were not received until the works were approaching completion.

(ii) (b) and (c) The excess in expenditure was brought to the notice of Municipality in February 1916 after the sanction of the revised estimate by Government.

(ii) (d) The Executive Engineer attended about five meetings of the Poona City Municipality during the present triennium.

ANNUAL ADMINISTRATION REPORTS OF LOCAL BODIES.

The Honourable Mr. V. J. Patel asked whether the annual administration reports of local bodies in the presidency are placed before those bodies by the Presidents for adoption before they are submitted to Government.

Government replied :—

The annual administration reports of local boards and municipalities are forwarded to the Commissioners, who submit to Govern-

ment a review of their working. Reports of local boards are not placed before the boards by the Presidents for adoption prior to their submission to the Commissioners. The general practice with regard to municipal administration reports is the same, except in Sind, where in the majority of cases these reports are placed before the municipal boards for adoption before submission to the Commissioner.

[Mysore.]

COMPULSORY ELEMENTARY EDUCATION.

Mr. C. Narasimhaiya asked.—(a) Will Government be pleased to lay on the table a statement showing—

- (i) the number of centres in which elementary education has been made compulsory ;
- (ii) the number of boys of school-going age in each ;
- (iii) the number of boys of school-going age that were attending schools before the introduction of compulsion and since ; and
- (iv) the number of cases in which coercive measures have been successfully adopted ;

(b) Will Government be pleased to state—

- (i) whether sufficient facilities have been provided in all these centres for the successful working of the scheme ; and
- (ii) whether the figures do not justify a more vigorous policy in the matter of compulsory education ;

Rajamantrapravina Dewan Bahahur Mr. J. S. Chakravarti replied.—(a) (i) 68.

(ii) & (iii) In 1914, out of 15,582 boys of compulsory ages, 10,600 were going to school, and 5,019 have been admitted since the introduction.

In 1915 out of 3,906 boys of compulsory ages, 2,376 were going to school, and 1,722 have been admitted since the introduction.

(The excess in number is due to the children of neighbouring villages attending the schools.)

In 1916, out of about 10,301 boys of compulsory ages, 6,098 were going to school, and 370 have till now been admitted.

(iv) 324.

(b) (i) The answer is in the affirmative.

(ii) Inadequacy of suitable accommodation is the main difficulty in the way of opening more schools in the centres notified till now. Vigorous action is being taken.

[United Provinces.]

The Hon'ble Mr. Chintamani asked :—

When is the report of the Pilgrim Committee, so far as it affects these provinces, likely to be published for general information? If their recommendations are under the Government's consideration, will an opportunity be given for the expression of public opinion before the Government takes its decisions on them?

Government replied :—

The report covers a wide ground. On some points of a simple character orders have already issued. The remaining recommendations are still under consideration. The report is about to be published, and the Government will naturally, in passing such further orders as may be necessary, give due weight to any criticisms and suggestions that are brought to its notice.

Recent Publications.

COLLIER'S LOCAL SELF-GOVERNMENT HANDBOOK. By W. Egerton, I.C.S., Calcutta. Messrs. Thacker Spink & Co. Sixth Edition. Price Rs. 12.

PARGITER'S BENGAL MUNICIPAL ACT. Revised, enlarged and brought up-to-date by H. P. Duval, M.A., I.C.S., District and Sessions Judge, Alipore. Second Edition. Price Rs. 7-8. Published by S. K. Lahiri & Co., 56, College Street, Calcutta.

BENGAL MUNICIPAL ACT, with latest Amendments. Copious Rulings, all Rules, &c. By Bhairab Ch. Dutt. Fourth Edition. Rs. 5. Published by Rai M. C. Sarkar Bahadur & Sons, Calcutta.

BOMBAY DISTRICT MUNICIPAL MANUAL. By A. E. Cumming. Price Rs. 12.

A SCHEME OF VILLAGE IMPROVEMENT in the Rangpur District. By J. N. Gupta, M.A., I.C.S.

LOCAL SELF-GOVERNMENT IN BENGAL. A paper read before the Indian Association. By Naresh Chandra Sen Gupta, M.A., D.L.

THE AMERICAN ROAD. A non-Engineering Manual for practical Road Builders. By James I. Tucker, Professor of Civil Engineering, University of Oklahoma. Price \$ 1.08.

STRESSES IN STRUCTURES. By A. H. Heller, late Professor of Structural Engineering, Ohio State University, Revised by Clyde T. Morris, Professor of Structural Engineering, Ohio State University. London. Chapman and Hall. Price 11s. 6d. net.

REINFORCED CEMENT CONCRETE CONSTRUCTION. By V. M. Kotasthane, Bombay. Shankar Printing Press. Price Rs. 7-8.

GRAY'S PLUMBING. Design and Installation. Illustrated. By William B. Gray, New York: David Williams Company. Price \$ 4.

THE HOPE OF THE FUTURE. The management of children in health and disease. By Dr. Mary Scharlieb. Chapman and Hall. Price 6s. net.

McNALLY'S SANITARY HANDBOOK FOR INDIA. Fifth Edition. Revised and re-written by Captain A. J. H. Russell, I.M.S. Price Rs. 2-8. (3s. 9d.)

INDIAN HOME NURSING. By Lieut.-Colonel R. J. Blackam, Bombay: Caxton Works. Price Re. 1.

THE MOTHER CRAFT MANUAL. By Mary L. Read. Boston. Little, Brown & Co. Illustrated. Price \$ 1.25 net.

HYGIENE OF INFANCY. By J. H. Kellogg, M.D., LL.D. Illustrated. Good Health Publishing Co. Price \$ 1.25 net.

STUDIES IN MALARIA. Illustrated. By Captain Hugh Stott, I.M.S., Calcutta: Thacker Spink & Co. Price Rs. 7-8.

THE INDIAN MANUAL OF FIRST AID. By Lieut.-Colonel R. J. Blackam. 15th edition, Bombay: Caxton Works. Price Re. 1.

THE POPULATION PROBLEM IN INDIA. Being a Census Study on the cause and effects of the high birth rate in India as compared with European countries. By P. K. Wathal. Bombay. Times Press. Price Re. 1.

Review.

THE BENGAL MUNICIPAL ACT. Being Act III of 1884 (Bengal) as amended by subsequent enactments. By F. E. Pargiter, M.A., I.C.S. Second edition. Revised by H. P. Duval, M.A., LL.M., I.C.S., Bar.-at-Law, District and Sessions Judge, Bengal, Calcutta. S. K. Lahiri & Co.

This is the second edition of Mr. Justice Pargiter's well-known commentary on the Bengal Municipal Act, which was first published in 1904. The book has been thoroughly revised and brought up-to-date. The notes are exhaustive and informing; all decided cases bearing upon the subject are digested and discussed and English decisions bearing on cognate provisions are also referred to. The Appendix contains the rules, regulations and notifications made and promulgated under the Act besides a number of model bye-laws, and other laws and rules bearing on municipal administration. An interesting account of the history of municipal Government in Bengal is given in the introduction and a copious index enhances the usefulness of the book and facilitates reference.

Mr. Duval has done his work of revising with much care and ability and the volume before us should prove useful to all interested in municipal administration in the Provinces in which the Act is in force.

The book has been admirably got up.

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[1917

Local Self-Government in the Madras Presidency during the last quinquennium.

THE Honb'le Sir P. S. Sivaswami Ayyar who has been associated with Local and Municipal administration in this Presidency during the last five years will lay down his exalted office in a few days and it may not be inappropriate to bring together a few of the salient cardinal facts connected with this branch of administration, so that our readers may be able to gauge for themselves the progress achieved under his regime. In this, as in other respects, we suffer from the fact that detailed information on these topics is not made available to the public interested in them. We have therefore to base our remarks on the papers placed on the Editor's table from time to time—mainly the general reviews of local and municipal administration and the discussions in the Legislative Council.

But, first, it may be asked what are the lines along which, in the larger interests of the country, the development of local self-government should proceed. As we all know, our Local Bodies—District Boards, Taluk Boards and Municipal Councils—are not merely consultative and advisory; they have administrative and executive functions as well. In other words, the policy of the Government is not merely to associate the people in the decision of the larger issues that come up before these bodies but also to give them a large share in carrying this policy into effect. Advance, therefore, should be made in increasing the number and influence of non-officials

in these bodies as well as in increasing the number of non-officials that serve as executive heads of these bodies.

The questions therefore are : *First*, has the non-official element obtained a more prominent place in the constitution of these bodies ? *Secondly*, as executive authority vests in the chairman and vice-chairman of these bodies, have the non-officials come to be more largely employed in these capacities ? *Thirdly*, there is a large body of officials subordinate to these local bodies and the interests of the country require that this agency should almost entirely be indigenous. Have we advanced towards this ideal during the last five years ? *Lastly*, it is a truism that everywhere the problems of administration are becoming more complicated and new issues arise at every turn—villages develop into towns, small towns into large towns and large towns into cities—and these bring in their train new problems of congestion of population, town extension, city planning, improvement of water-supply, removal of sanitary defects, etc. Have Municipal Councils and Local Boards been awakened to a realisation of their larger duties in these respects ? On the answer to these individual questions will depend the answer to the one question as to whether our Province has made any advance during the last quinquennium. We shall deal shortly with the points in the order indicated above.

Nine new municipalities were constituted during the period under review ; over fourteen councils had their franchise extended, the number of elective seats in them being raised by 63. At the commencement of the quinquennium there were sixty-one councils with a total strength of 896, of which 168 were officials and 728 non-officials, the elective seats numbering 449. At the end of it, the total strength rose to 1019, officials and non-officials numbered 186 and 833 respectively, and the elective seats rose to 502. There was a similar broadening of the constitution of District and Taluk Boards. On the latter the elective seats rose from 331 to 759.

The rules for the election of members to Municipal Councils and Taluk Boards were revised. The main change

introduced in the former was the abolition of the separate qualifications prescribed for voters and candidates—a principle which was accepted recently in regard to Taluk Boards as well. These rules mark a real step in advance, though one would wish that the property qualification for voters was fixed at a much lower figure than now. It is, we believe, the case that under the present rules only a small percentage of the inhabitants of a local area are borne on the electoral rolls and this is mainly responsible for absence of interest in elections and in the management of local affairs, and for corrupt practices and other evils.

We also notice a steady advance in the policy of entrusting the actual administration of local bodies to non-official Chairmen and Presidents. Eight councils were allowed to elect their own Chairmen—among them important ones like Tanjore and Palghat. But it is in regard to rural boards that the greatest progress was made in this respect. We are as far as ever from non-official Presidents of District Boards, but the extended employment of non-official Vice-Presidents of District Boards has been a marked feature of this period, the number of these rising from four in 1912 to eighteen in 1916. We may add that, quite recently, the Government have undertaken to try the experiment of elected Vice-Presidents in selected districts. More important than this, the system of non-official Presidents of Taluk Boards received a large extension. During the period, over 28 Taluk Boards were allowed to have non-official Presidents, three of them elected. More than a fourth of the Taluk Boards in the Presidency were thus given non-official Presidents during a period of five years—a rate of progress with which there is no reason to be dissatisfied. We trust that this progress will be maintained and that a large number of these boards will be allowed to elect their Presidents.

Side by side with the reforms referred to above, greater powers were conferred on local bodies, mainly as the result of the recommendations of the Decentralisation Commission. It is of course incorrect to say that official control has been

relaxed to the extent necessary for the growth of responsible self-government in local affairs, but irksome restrictions on matters of detail have been removed. There has also been an extension of the indigenous agency in the service of these bodies; we believe, for example, that the number of Indian District Board Engineers has been steadily increasing from year to year.

We have not hitherto referred to that most important unit in local self-government—the *panchayat*. As our readers are aware, the Decentralisation Commission devoted a valuable section of their Report to this important subject. The question aroused considerable interest and was widely discussed, but the policy eventually decided upon by this Government did not meet with popular approval. Two lines of development were marked out—extension of Unions under the Local Boards Act and the formation of informal *panchayats*—bodies with no legal existence and no recognised powers. It may be admitted, however, that efforts have been made to make Unions under the Act more popular. In the first place, it has been laid down that no village should be made into a Union which is not a homogeneous unit and in which the villagers are not substantially in favour of its formation. Secondly, an officer was placed on special duty with instructions to see that the rules and accounts are simplified and to devise a system of working which would not involve the appointment of costly clerical and other establishments which too often absorb the greater portion of the limited resources of these bodies. Lastly, to arouse local interest, it is proposed to introduce a large elective element in Unions and it is gratifying that in the draft rules recently published the franchise is very wide and that practically every tax-payer resident in a village is given a vote. Rules have also been published for the election of Union Chairmen and we trust that every Union will be given this privilege in the near future. If this is not done, the Unions of the future will be like those of the past—lifeless bodies with no real voice in the affairs of the village.

Along with the broadening of the basis of the constitution of local bodies, there has also been, during this period, a steady effort to make them take an interest in larger questions like town-planning and sanitation. No movement in recent years has been more fruitful than that initiated by Prof. Geddes and developed by Mr. Lanchester. Local bodies have been made to take an intelligent interest in planning the growth of towns, not in the haphazard lines of the past, but according to a systematic programme carefully conceived and worked out, and the conscience of the community made alive to the need for enforcing building regulations. This new spirit which is bound to grow in years to come, has been sedulously fostered and, largely with the aid of Government grants, schemes of extensions on lines approved by experts are being carefully worked out and executed in large towns.

There has also been an awakening in regard to sanitary reform. A scheme of Popular Health Lectures is being experimentally tried, the object being to educate the masses in elementary principles of hygiene. In the large towns, we believe that a right step has been taken in the appointment of Health Officers and a better class of Sanitary Inspectors.

Lastly, we must refer to the legislative activity of the period. It is true that no additions have been made to the statute book, but the Madras City Municipal Bill has just been published. The provisions of this Bill relating to taxation have, we think, justly given rise to adverse criticism, but it cannot be denied that in its essential features the Bill is a distinct improvement on the existing Act and is conceived on more liberal lines. Bills for the amendment of the District Municipalities and the Local Boards Acts and a Town Planning Bill have also been prepared but as these have not been made public, we are unable to say if and how far they will satisfy reasonable popular aspirations.

We have attempted to describe the broad lines on which Local Self-Government has developed during the last five years. We have considered it unnecessary to enter into details

or into individual administrative acts; nor have we at our disposal the information required for a detailed survey. But, the facts that we have brought together from the published papers will show that there has been steady progress. There are, however, several directions in which we would have liked an advance and in which reasonable expectations have not been realised, for example, a cautious experiment in free and compulsory education in Municipal areas, the system of non-official presidents of District Boards, election of presidents of Taluk Boards, an enlargement of the Sanitary Board, etc. We are hopeful that in the post-war era, progress will be more rapid, but the conclusion is indisputable that there has been a steady and marked progress during the last five years and that much solid work of a permanent enduring character has been done. In some directions progress was necessarily slow; the first steps are always the most difficult and there must be consolidation before rapid advance is possible. That the experiments have almost always been on right lines and justified themselves in every case is signal proof of the care and discernment with which they were inaugurated.

Municipal Administration (1915-16).

I.—Bengal.

IT is refreshing to note that during the year 1915-16 the Municipalities of Bengal suffered so little from the unfavourable financial conditions consequent on the War that their collections increased by nearly a lakh of rupees and that they had no difficulty in providing for current needs. The effect of the War was, however, apparent in their inability to undertake large and expensive schemes of improvement for which they are dependant on the assistance of Government by means either of grants or loans or both. The Bengal Government complain that few private individuals come forward with generous contributions for public purposes and that both municipal commissioners and the rate-payers are

opposed to increased taxation so that funds for large schemes are not forthcoming from other sources. It is stated that owing to the necessity for careful economy of the Provincial revenues, the amounts which the Government could make available for grants and loans to municipalities had to be reduced and consequently that a number of useful schemes of water-supply and drainage had to be kept in abeyance. The Governor in Council hopes that as soon as normal financial conditions are restored, he will be able to extend to municipal bodies the assistance they require for these projects of improvement. He, however, re-affirms the principle that Government with many demands upon its limited resources cannot make grants to municipal boards which have not learnt the lesson that the development of their towns depends mainly on their readiness to raise taxation to a reasonable figure and that in the case of water-supply they must be prepared to make the projects self-supporting.

In pursuance of the policy that the representative system should be extended to the greatest extent compatible with the interests of the rate-payers, orders were passed that the right to elect municipal commissioners should be given to nine municipalities in which they had hitherto been appointed by the Government. Eleven municipalities have since been given the right to elect their chairman, the number of municipal towns in which the Government appoint the chairmen having been reduced to fourteen.

In order that the Municipal Boards should enjoy the fullest measure of financial independence permissible under the law, the Governor in Council directed that all municipalities except those in which maladministration had shown that such a concession could not safely be allowed, should be given a free hand in framing their budgets according to their discretion, the commissioners of divisions being required only to see that the law, statutory rules, and Government orders are complied with and that due provision is made for the necessary minimum closing balance and for the service of municipal loans.

It is needless for us to add that the first lesson to be learnt by municipal bodies in independent self-government is the economical management of their resources. The discretion allowed in budgeting their own receipts and disbursements should be very carefully exercised, if the financial position of the local bodies is to remain solvent. The Bengal Government therefore rightly expects the municipal commissioners of the several towns to exercise the privileges granted to them in that matter in a just and proper manner so as to fully justify the confidence reposed in them by the Government.

In regard to general elections the report reveals a significant instance of the democratic leaven at work under the present representative system, namely, that a Muchi and a Chandal were elected commissioners in one municipality. It is gratifying to observe that there is a growing interest in municipal elections generally, but it is a matter for regret that they should be associated with a tendency to resort to litigation. One-sixth of the elections were the subject of civil suits. The same feature prevails in the municipal elections in this Presidency also. Whatever may be the causes of these civil suits, it is clear that they are a serious check to municipal administration and the sooner they disappear from municipal politics, the better it will be for the advancement of the cause of self-government.

Under assessments we note that complaints have largely been made that the municipalities show great reluctance to increase their taxation. Instances have been cited which go to show that the commissioners reduce the original assessments on appeal to a very large extent. The reluctance to overtax themselves is natural enough, but it is incumbent on the commissioners to place public interests before private inconvenience.

The only waterworks scheme completed during the year is that of the Bankura Municipality. Prominent mention should also be made of a large scheme now under consideration for the water-supply of a large number of Riparian Municipalities on the east bank of the Hooghly, north of Calcutta.

The scheme is estimated to cost 35 lakhs, and the Municipalities concerned were invited to confer in regard to the details of the scheme under which a Waterworks Board is to be constituted and the waterworks financed and managed jointly by them. This is an interesting experiment and we must watch the results.

Financial irregularities and serious embezzlements seem to have been prevalent in some municipalities. As a result of the relaxation of control exercised by Government over municipal budgets, it is stated that certain instances of extravagance have occurred. But as the new policy of non-intervention in budgets has only been recently introduced, the Government rightly consider that it would be premature to draw conclusions at present as to its effects.

In conclusion, the Bengal Government observe that they have read the criticisms of the Commissioners and District Officers on the working of municipalities during the year with some sense of disappointment. They proceed to observe that the towns-people of Bengal have now had over thirty years' training in municipal administration and that they could not but feel, after reviewing the record of the year's work in the most friendly spirit, that, with some notable exceptions, progress is slow. In regard to municipalities in the Presidency Division it is alleged that Sanitary Officers have received little encouragement, that taxation is inadequate, that expenditure on drainage and water-supply is not seriously faced. Not satisfied with these indictments, the Commissioner of the Presidency Division observes as follows :—

“The Municipal Committee's conception of civic duties is seldom sufficiently high to set self-interest aside and test the faith of the people in municipal government by a large increase of taxation.”

Instances of several individual municipalities having failed to perform their duties efficiently owing to laxity of management and torpid inaction accompanied by a listless expectancy of Government aid have also been brought to notice. Party spirit and faction have also in some cases affected the internal administration of some of the municipalities.

It is rather a painful spectacle that these municipalities should be held up for such gross dereliction of duties and mismanagement of affairs. But we have to remember that perfection cannot be expected in the case of these infant institutions and hope that ere long they will remove the reproach cast on them and set a better example for others to follow for the future.

II.—Burma.

The Resolution of the Burma Government reivewing the reports on the working of municipalities in Burma during the year 1915-16 hardly presents any interesting features. It does not give any insight into the methods of the working of these municipalities or the progress the municipal institutions have made in that Province in the art of self-government. Beyond the dry details of receipts and charges and unimportant facts, there is nothing which catches the eye of the general reader.

The total number of municipalities in the Province continued to be 44 and there was hardly any change in them. General elections took place in four of the municipalities, but there were no contests in two of them and no candidates offered themselves for election for certain wards. Facts and figures quoted in the resolution do not demonstrate any general interest in municipal elections.

Under waterworks there was an outlay of more than four lakhs. Waterworks were in progress in Pegu and Maubin; and in one other municipality a water-supply scheme consisting of a rain water tank with pipe lines has been completed. Some experiments made in sinking tube wells for supply of water to towns proved failures.

Under sanitation the noticeable feature is the reclamation of land for recreation grounds. Several schemes of this description were under consideration or in progress during the year.

The provision and extension of hospital accommodation for the relief of the suffering is stated to be one of the most promising fields in Burma for the exercise of private benefactions. The local Government is engaged in considering its policy with regard to the maintenance of hospitals in small stations,

What City Planning Is.

The Purpose of City Planning.

[BY FRANK KOESTER, CITY PLANNER AND CONSULTING
ENGINEER, NEW YORK.]

IN the scope of practical city planning are included the broadest principles and the fullest details. The leading elements are the plan of the city as a whole, the segregation in suitable districts of the different classes of the population and their proper housing in classes of structures suited to their requirements, the arrangement of such classes of structures in groups and district units and the placing of such groups and units in proper relation to the whole, the development of other classes of units, such as civic centers, parks, public squares, grounds, athletic and recreation fields and cemeteries, and their location with reference to their uses and nature; the supplying of the units with the facilities and the public structures necessary for the business to be transacted in them, the location in civic centers of buildings suited thereto both as to their uses and their architectural characteristics, the arrangement of systems of transportation, the laying out of streams of traffic, location of railway stations and bridges and harbor facilities, the systematic location of schools, libraries, churches, hospitals, institutions, theatres and other semi-public structures; the general hygienic design of buildings and the system of city sanitation and waste disposal, the laying out of adjoining lands, woods and fields for purposes of recreation, the artistic regulation of structures and street plans and the laying out of surrounding territory, all in accordance with a settled plan adapted to fulfil in the best possible way the purposes intended.

The planning of a city, like the planning of anything else, should be carried out with a view to the use which is to be made of it and to adapt it best to that use and in addition to make it as pleasing from an artistic point of view as possible.

There should first be strength in the design, and if strength be economically manifested the artistic enrichment of the design will be easily effected.

Practical city planning is not only not necessarily a source of expense to the city, but it is frequently a means of profit, conferring its benefits not only on the citizens directly, but often relieving them of a large part of the burdens of taxation.

But whether immediately profitable or not, city planning is not only a duty of the present, but an obligation to posterity. No owner of a growing manufacturing enterprise would neglect to properly plan extensions; but most cities, which are in reality super-enterprises, grow and expand without plan or forethought, generating congestion, waste, poverty and the necessity of enormous expenditures in later years to correct faults which a stroke of the pen of the city planner, at the proper moment, would have obtained.

City planning determines the destiny of a city. It develops artistic taste, civic pride and patriotism; it makes better citizens and artisans; it adds to health, comfort and happiness; it helps to increase population and produce industrial prosperity.

City planning attracts industries, commerce and visitors; it produces better transportation facilities, improved hygienic conditions, and more adequate and less expensive living quarters and food supplies. It is a business proposition of the first importance.

“What Tuberculosis is Doing in Madras.”*

[BY MAJOR F. F. ELWES, C.I.E., I.M.S.]

THE title of my paper this evening “What Tuberculosis is doing in Madras” has been selected not so much with the idea of telling you the extent of the ravages of this disease in Madras City and Madras Presidency, as for the purpose of showing you how very readily the disease spreads

* Being the fourth of the series of Popular Health Lectures (1916) delivered at the Victoria Public Hall, Madras.

from one person to another and yet how comparatively easily tuberculosis may be prevented from spreading, even if it cannot be actually stamped out, by the people themselves taking the simplest precautions.

It is unnecessary for me to say much about the prevalence of tuberculosis in Madras, for probably many of you have friends or relations suffering from tuberculosis or who have died of the disease. But I may just mention that Dr. Chandra Sekhar who is in charge of the Tuberculosis Dispensary opened last year in Egmore, calculated from figures obtained at this Institute that there must be some 10,000 people in Madras City alone suffering from this disease, and of this number about 3,000 are in a highly infectious state. Tuberculosis is a disease due to a minute micro-organism known as the "bacillus tuberculosis." This organism is so small that it can only be seen by the very high magnification of a microscope. That this bacillus really does cause the disease is proved by the fact that all tubercular patients have this bacillus present in the diseased organs and by the fact that if these bacilli are injected into certain animals such as guinea pigs and rabbits they develop tuberculosis.

In the human being the tubercle bacillus generally attacks the lungs and produces the disease commonly termed Phthisis or consumption, but although most people realize that consumption is tuberculosis, few apart from those connected with the medical profession are aware that many other diseases and deformities are produced by the same bacillus, attacking other organs of the body, such as the brain, the lymphatic glands or the bones.

The lungs, as you are aware, are the organs by which we breathe and air is "the breath of life." No one can live for more than a few minutes without breathing. It is therefore essential that the lungs should be healthy and sound. Phthisis is produced by the tubercle bacillus attacking the lungs and gradually destroying them.

The lungs are like a pair of elastic or rubber bags, or bellows, which when they expand fill themselves with air. This air is taken by the lungs, so that the oxygen (which is a gas forming part of the air) may come into contact with the blood which absorbs the oxygen and carries it to different parts of the body. Without this oxygen none of the organs of the body, not even the heart, can do its work; in other words, without oxygen life cannot be maintained. But the lungs are not only used to supply the body with this most important gas oxygen, they are also used as excretory organs, getting rid of waste products for which the body has no further use. Just as by expanding they feed the body with oxygen so when the lungs contract again they expel into the outer air, waste products which the blood has given up in exchange for the oxygen it has received.

It is therefore absolutely essential that the lungs shall be healthy and sound, for if diseased they cannot do their work properly, with the result that on the one hand the body may be deprived of a full share of its most important food oxygen, whilst on the other hand it may be slowly poisoned through being unable to dispose of certain waste products which are poisonous to itself and are ordinarily excreted by the lungs.

Phthisis or consumption is, as I have said, caused by the tubercle bacillus attacking the lungs and gradually destroying them. The lungs are very delicate organs.

Those of you who are motorists or cyclists well know it is not very difficult to destroy efficiency of a tyre or inner tube; the walls of the tube soon perish and the elasticity is destroyed, or you have only to puncture an inflated tyre, and it collapses. Well, this is more or less what happens in consumption. The tubercle bacillus having gained access to the lungs, multiplies and by its multiplication sets up inflammation, and the products of inflammation not only destroy the elasticity of the lung wall, but the tubercle bacillus causes softening so that ultimately ulceration of the wall may occur, and sometimes even a portion of the lung may collapse just

as does a punctured tyre. The whole lung is not at first affected by the tubercle bacillus, for if it were, death would very soon occur; but the tubercle bacillus having once taken its seat in the lungs multiplies rapidly and spreads not only from one portion of the lung to another, but also to the opposite lung, until it succeeds in destroying so much lung tissue that the individual cannot live.

The importance of this disease is however due to the fact that every individual suffering from consumption is a source of danger to his neighbours as you will readily understand when you realise that every time a consumptive exhales air from his diseased lungs—and this he does some 20 times or more in a minute—he breathes out in air he expires a number of tubercle bacilli capable of causing the same disease in other persons; but the consumptive is also constantly coughing and when the disease is advanced, with his cough he spits up diseased, broken down lung tissue which is teeming with tubercle bacilli, so that not only every breath but still more so every cough and every expectoration of the consumptive pours thousands of tubercle bacilli into the air around him. What is the result of this? The result is that the air around a "Consumptive" becomes saturated, if I may so term it, with tubercle bacilli, and so becomes a source of infection to others breathing the air.

We all of us possess a certain power of resistance to the tubercle bacillus, but this resistance or "immunity," as it is termed, to the tubercle bacillus varies very greatly in different individuals and varies from time to time even in the same individual. The resistance being much less marked when in poor health than when in robust health.

Those who naturally possess a low power of resistance are particularly liable to contract the disease, when brought into contact with a consumptive but even the strongest when not quite in his usual robust health may succumb if the dose of tubercle bacilli is sufficiently strong or frequently repeated.

No one therefore is safe from the tubercle bacilli, for even the strongest and healthiest amongst us, if he constantly breathes air contaminated with the bacilli in large numbers, is almost sure to contract the disease sooner or later, and how much more readily will the weaker and more delicate ones yield to the onslaught of this bacillus.

From what I have already said, I hope you realise that the main factor, I might say here in Southern India, almost the only factor in the spread of tuberculosis is the consumptive himself, who constantly exhales from his lungs this deadly bacillus.

I could tell you of several instances which have come before me personally, but one or two will perhaps suffice to impress upon you the danger the consumptive is to the household in which he lives. A certain officer well known to me, had an office peon constantly in attendance on him ; this peon suffered from cough but it was not until the officer himself also began to suffer from cough that he sought medical advice for himself and his peon. The peon was then discovered to be suffering from advanced Phthisis and the officer himself had contracted the same disease ; but unfortunately it did not end here, for I subsequently learnt that this same officer's butler developed a very severe cough on account of which he had to leave the service of a new master to whom he had gone, and very shortly after he had left his service, this gentleman also developed Phthisis. The chain of infection therefore seems fairly complete in this case, from peon to master from master to butler and from butler to his new master. Again only last year I had a young girl under my treatment for tuberculosis ; she came into hospital as soon as it was discovered she had tuberculosis but in spite of this a few months after her admission her sister who had been living in the same house with her, was also admitted to the same ward suffering from the same disease. Dr. Chandra Sekhar reckons that for every case seeking treatment, there are two more cases in the same house in an earlier stage. These are but a few instances

of many which might be quoted to illustrate the spread of tuberculosis from one individual to another.

Milk is said to be a frequent source by which many people are infected with tuberculosis, the milk being obtained from cows which are themselves suffering from this disease. There is no doubt that in many countries, milk is a common source of infection, but here in India, at all events in Southern India, milk is not so important a cause of tuberculosis as in many other countries, for tuberculosis has not been proved to exist to any appreciable extent in the cattle of Southern India. It is true that cases of supposed tuberculosis amongst cattle have occasionally been reported, but very seldom, if ever, have the cattle been proved, by the finding of tubercle bacillus, to be suffering from this disease, and hence direct infections from tuberculous cattle by means of infected milk is in all probability of very infrequent occurrence in Southern India. Milk may, however, be a source of danger even though obtained from healthy cows, for it is a medium in which the tubercle bacillus can grow and multiply readily.

Milk should therefore always be kept in a clean covered vessel to prevent access of dust which may be laden with tubercle bacilli, and even with dried sputum from a consumptive patient. It should always be boiled before use; more especially in houses in which there is a consumptive, as boiling destroys the tubercle bacillus. I repeat however that milk is a comparatively unimportant factor in the spread of this disease which here in Madras is spread almost entirely by human agency.

Once having grasped this main fact that it is the " Consumptive " alone who spreads this terrible disease from person to person the key of the problem of how to prevent the spread of tuberculosis is within your grasp.

If every consumptive could be isolated, the disease would soon die out, but the isolation of all consumptives is practically impossible; what therefore can be done to prevent the spread of tuberculosis?

The consumptive spreads the disease, as I have already said, mainly by breathing, coughing, and spitting tubercle bacilli into the air around him. If therefore we can either prevent the consumptive from exhaling and expectorating the bacilli from his lungs into the surrounding air, or if we can prevent others from taking into their lungs this air containing tubercle bacilli, we shall be well on the way towards eradicating the disease. We must therefore consider preventive measures from two aspects and these are :—

Firstly.—Measures which can be adopted to prevent the consumptive from poisoning the air around him with tubercle bacilli ; and,

Secondly.—Measures for preventing others from inhaling air poisoned by consumptives.

Let us consider what can be done in our own houses and amongst our own families with regard to No. (1), i.e., measures for preventing the consumptive from poisoning the air around him with tubercle bacilli. There is much that can be done. We cannot forbid the consumptive to breathe, but we can forbid him to expectorate on floor of his house, or in the railway carriage or in the tram cars, or even in the public streets, for it is indiscriminate expectoration which is one of the most potent factors in the spread of tuberculosis, for the expectoration soon dries and tubercle bacilli are blown about in the air.

The first essential then is that the consumptive must never spit on the ground ; he must always expectorate into a vessel kept specially for this purpose. A glass jar or any kind of vessel will do. And in this vessel a little antiseptic fluid such as Carbolic Acid or Lysol must be kept as such fluids destroy the tubercle bacilli ; or if no vessel is at hand the consumptive must expectorate into a handkerchief or any piece of old cloth which must subsequently be burnt. By so doing the tubercle bacilli which the consumptive spits out every time he expectorates will be destroyed instead of being allowed to float about in the air until taken into lungs of healthy people and so infecting them.

Secondly, the consumptive, when he coughs, even if he does not expectorate, should always place a handkerchief or piece of old cloth before his mouth, for every cough brings up air from the deeper parts of the lung, and air so brought up is often full of tubercle bacilli.

These two precautions, coughing and expectorating into a vessel containing an antiseptic or into a piece of old cloth which is afterwards burnt are very simple and cheap but very effective methods for preventing the spread of consumption, and are measures which anyone not only can, but certainly should, adopt in his own house and amongst his own family and relations if any member is suffering from consumption, or even thought to be consumptive.

Having considered the chief simple measures to be taken to prevent the consumptive from contaminating the air around him, let us now consider what means may be devised to prevent other people inhaling the air contaminated by a consumptive. Is there anything that can be done in this respect? There is a great deal that can be done.

At the present time it is only too common to see a person suffering from advanced Phthisis in one of the darkest and innermost rooms of the house (the windows of which are probably closed), surrounded by numerous relatives and friends, the number present perhaps only being limited by the capacity of the room. This is no exaggeration at all, for I have myself frequently seen here in Madras this very condition, a small stuffy room crammed full of relatives—for the most part female relatives—surrounding and ministering to one of their number suffering from advanced consumption. Such a state of affairs is not only most harmful to the sufferer but is without doubt one of the most effective methods that could be devised for conveying tuberculosis from one to another.

I believe I am correct in stating that such statistics as are available tend to show that in India consumption is far more frequent amongst the women of the country than amongst the

men, and still more frequent amongst purdah women,* and it is amongst these particularly that such conditions as I have described exist.

It is not however only during the day that the consumptive is surrounded by others breathing the same air but not infrequently at night too, several people occupy the same room as the consumptive but with the conditions even worse if possible than by day, far at night not only are the windows closed but the doors also, with the result that as the night advances the air in the room becomes more and more contaminated until by morning the air is heavily laden with tubercle bacilli some of which every occupant of the room is taking into his lungs with each breath. Is it any wonder that under such conditions tuberculosis spreads readily from person to person? Such conditions can surely be avoided in any and every household.

First of all then, the consumptive instead of occupying the least airy room in the house should occupy the most airy room, or the verandah if there is one. If there happens to be a compound around the house a separate temporary structure consisting of little more than a roof may be erected beneath the shade of a tree or if there is no compound such a structure may be erected on the roof of the house, but wherever the consumptive is, be he in a room, verandah, or separate structure, there should be the freest possible communication with the outer air, so that the air in the vicinity of the sufferer does not become saturated with bacilli and a source of danger to others around.

Secondly.—No one, except in cases of dire necessity, should be permitted to sleep in the same room as a consumptive; but if for purposes of protection it is essential that some one should sleep in the same room, then only one attendant should be permitted to occupy the room at night; and the greatest care should be taken that there is the freest possible

* This is borne out by the investigations of Dr. Srinivasa Rao. See L. S. G. Gazette, Vol. II, p. 371.

communication between the air of the room, and the external atmosphere.

Thirdly.—The implements and utensils such as spoons, forks, and drinking vessels, which are used by a consumptive, should not be used by anyone else as it is perfectly possible for the germs of tuberculosis to be conveyed to another person by drinking out of a vessel which has been used by a consumptive and not thoroughly cleaned subsequently.

In this connection I should like to draw attention to a custom which is, I think, very possibly a most important factor in the spread of tuberculosis here in Madras City. I refer to the numerous so called hotels and coffee houses for Indians, which have increased enormously, I am informed, within the last few years, and which are now utilized to a very great extent by Indians of all classes. Such hotels and coffee houses are established with no idea of philanthropy but solely with the purpose of making money. Brahmin cooks are usually employed and consequently practically all classes of Indians resort to these hotels and coffee houses. But although deference is paid to the caste prejudices of the customers, yet there is certainly in many cases very little, if any, attempt at cleanliness. The eating or drinking utensils, be they cups or spoons or any other such utensil, are in many such institutions passed from one individual to another without any serious attempt at cleansing them. I advisedly say serious attempt for there is generally a superficial attempt at cleansing. The method commonly in vogue is to hastily dip the cups after use in a common tub of cold water and then put them amongst the clean cups for the use of the next customer. As the water in this common tub rapidly becomes fouled it may well be imagined that such a mode of cleaning is far from satisfactory. It is not however only cups which are so cleansed but I have been informed by more than one Indian gentleman that spoons which have been used by a customer for the purpose of eating *hulva* are cleansed in the same perfunctory manner and then passed on to the next customers. Those

of you who are accustomed to eat *hulva* will doubtless appreciate the fact that a mere dipping of a sticky *hulva* spoon into a tub of cold water is scarcely a satisfactory method of cleansing it. I do not wish it to be understood that I say all hotels and coffee houses adopt such methods of cleansing the eating and the drinking utensils in use, for there are certainly some hotels and coffee houses in which the utensils are cleaned in boiling water. But the coffee houses which cleanse their utensils in the manner I have described are, I am sure, a source of great danger to the public and are not improbably an important factor in the spread of tuberculosis in this City of Madras.

The measures I have mentioned for preventing the spread of tuberculosis when a case has already occurred are easily carried out in any household and cannot in any way interfere with any caste or racial customs, but the old adage "prevention is better than cure" is particularly true with regard to tuberculosis, and though I have told you how tuberculosis may be prevented from spreading once it has gained access to your house, yet you are probably saying to yourselves this is all very well, but what are we to do to prevent tuberculosis from entering our houses, for only to tell us what to do when the disease has already made its appearance is rather like "shutting the door of the stable after the horse is stolen."

I will therefore, before closing, say a few words about guarding against the entry of tuberculosis.

Unfortunately tuberculosis is so extremely prevalent that it is almost impossible for any of us to go through a life of average duration without inhaling a good number of tubercle bacilli, and indeed the majority of us at some period of our life do actually suffer from tuberculosis in one form or another—generally tuberculosis of the lungs. That most people do suffer from tuberculosis is proved by the fact that of all post mortem examinations performed some 60% to 70% are said to show tubercular lesions somewhere in the body and yet the actual percentage of deaths from tuberculosis is far below

this figure. This in itself is somewhat cheering for it demonstrates the fact that although we nearly all of us do contract tuberculosis at some period of our life yet only a few of this number who contract the disease actually die of it. In other words we succeed in defeating the tubercle bacillus instead of succumbing to it. Why is it that some of us are able to get the better of the tubercle bacillus, whilst others succumb to its attacks? You may remember that earlier this evening I remarked that the power of resistance to tuberculosis was very different in different individuals. Some have a far greater power of resistance to this disease than others, who are, perhaps from birth, perhaps from poor health owing to unhygienic surroundings, particularly susceptible to tuberculosis. This is the key to the problem of how to prevent tuberculosis. It is a question of increasing the resistance of the body to tuberculosis or as it is usually termed increasing the immunity of the individual to the tubercle bacillus. How then can this power of resistance to the tubercle bacillus be enhanced? It can be enhanced by improving or maintaining the general health of the individual.

Briefly, to avoid tuberculosis—and this applies more particularly to those who are naturally delicate and to those whose ancestors have suffered from tuberculosis—one should live almost as though one had already contracted the disease. Live and sleep as much as possible in the open air, take the most nourishing food available, and devote due time to the physical development of the body, for it is useless to possess a highly developed brain if the body is too delicate to support life. It is particularly with respect to children during their growth and development that it is of the utmost importance and I again repeat especially with children who are naturally delicate, or poorly developed, or come of tubercular stock, that the utmost care must be taken to see that they live and sleep as much as possible in the open air and live in every way a thoroughly hygienic life. By so doing the body will be fortified against the onslaught of the tubercle bacillus, an enemy which is almost certain to attack nearly all of us

sooner or later, and the result of these attacks, whether the individual is or is not successful in keeping at bay tuberculosis will depend to a very great extent upon the preparedness of each one to meet the attack of the tubercle bacillus.

It should be clearly realised that it largely depends upon the people themselves whether tuberculosis increases or decreases, for without the active co-operation of the people it is almost a hopeless task to stamp out tuberculosis, but with the active and intelligent co-operation of the head of each household, tuberculosis can be almost completely eradicated, at all events here in Southern India, where tuberculosis is spread practically entirely by human agency.

In addition to this, however, it is an urgent necessity that certain measures should be taken to deal with the numbers of tuberculous people now at large in the community and who are a source of great danger to the public. The most important of such measures are :—

(1) The establishment of hospitals for advanced cases of consumption. By providing such hospitals, the advanced and highly infectious cases will be prevented from mingling with others and spreading the disease as they are doing at present.

(2) The provision of institutions for the recognition and treatment of early cases. One tuberculosis dispensary has already been opened in Egmore. Not only should others be founded but to each one a staff of assistants or nurses should be attached whose duty it would be to visit the houses from which the tubercle patients come and instruct the inmates regarding the infectious nature of the disease and how to prevent others from contracting it.

(3) The establishment of a fund for the relief of poor consumptives whilst they are debarred from work on account of necessary treatment. If the public will not provide these facilities they will sooner or later pay heavily for their negligence as consumption appears to be rapidly on the increase.

A Popular Type of Housing Society.

[BY RAO BAHADUR S. S. TALMAKI, B.A., LL.B.]

I

LUIGI Luzzatti, the Prime Minister of Italy and one of the greatest social workers and the father of the Italian Co-operative movement observed in his presidential address at the International Co-operative Conference held at Cremona that all theories would be welcome which would ensure social peace, but the best theory would be that which could save the greatest number from the usury of goods, the usury of money, and the usury of rent. To England and Germany is due the honour of discovering the theory for saving humanity from this triple variety of usury. The humble weavers of Rochdale led the way by discovering a remedy for the usury of goods. A burgo-master of Westerwald and a petty judge of Delitzsh proved to be the pioneers of the movement for overcoming the usury of money. And to a working-class club at Birmingham is attributed the early discovery of a plan, which in later years gave birth to the full-fledged institutions known as Building Societies, for mitigating the evils of the usury of rent. It is this last class of institutions that I propose briefly to notice and to consider what modifications in their methods would suit our modern requirements.

The object of a Building Society is to enable its members to own their houses by purchase or building with the help of loans obtained from the Society. The funds of the Society are raised by small periodical subscriptions from its members payable in proportion to the shares purchased, until each in his turn would be able to receive a sum sufficient to enable him to build or buy a house. Each member has to purchase shares in proportion to the loan required by him. The share capital raised by subscriptions can further be augmented by loans and deposits receivable by the Society to the extent of two-thirds of its assets.

To avail himself of the aid of the Society a member must be in possession of a portion of capital of his own, say a fifth

of the value of the house to be acquired, such portion being known as the margin of safety. Thus if a member wished to purchase a house worth Rs. 3,000, he could only borrow Rs. 2,400 from the Society, and to this he had to add Rs. 600 of his own, and with the whole amount he could build or purchase the house which he would mortgage to the Society for the amount borrowed. The loan with interest would be repayable by instalments spread over a number of years varying from 5 to 15, according to the convenience of the borrower, he being however at liberty to repay it, if he could, earlier than the stipulated date.

The Building Society movement commenced its career in England about the end of the 18th century, and in course of time made such rapid strides that the returns available for 1908 showed that at the end of that year it counted a membership of over half a million with assets totalling over 72 millions and an income of over 38 millions. If to these were added the figures of the several competing agencies in the same field, the result would appear to be marvellous indeed ! In America the progress of these Societies has been phenomenal. In the Dominion of Canada their assets at the end of 1904 aggregated over 25 millions, with a membership of over quarter of a million, and in the United States their total assets about the same period were over 130 millions with a membership of over a million and a half.

Thus the Building Society movement proved to be a powerful remedy against the usury of rent. It considerably improved the economic condition of the lower classes of people by transforming the rent paying tenant into an owner of a house, and in many cases into even a rent-receiving landlord. For here the wasteful method of paying rent was done away with, and the rent itself was converted into part payment of the price of the house occupied. Before the advent of these Societies none could hope to own a house unless he were able to save a sum sufficient to pay down its price, but after they began their operations all those who could save enough to pay the monthly instalments under the scheme were enabled to

acquire a house if they chose. The Societies proved to be a potent factor in promoting thrift and providence and an effective means of advancing the social condition of the working classes.

A Building Society on these lines would only be possible where land and materials are cheap, otherwise its benefits will be limited, as will be shown hereafter, only to the upper middle classes, that is those who would be in a position to save enough in the course of a few years to enable them to own a house. Considerable modifications will have however to be made in this scheme in order to extend the benefits of the movement to the lower middle classes, and even to some at least of the poorer classes who cannot be expected to save much above the rent they have to pay.

Before, however, we consider any modifications in the Building Society methods to suit our requirements, it would be interesting to refer to a somewhat similar scheme started in Bombay by some enterprising leading gentlemen, under the management of the well-known firm of Marsland Price and *company. The idea was to construct a number of small decent houses on the Improvement Trust plots in Gamdevi, so as to bring them within reach of those classes of people who could not hope to own a house in the ordinary way. Loans were not to be advanced as in the case of Building Societies, but the Company itself undertook the work of construction, and the houses when completed would be placed at the disposal of the intending purchasers on the hire-purchase system. But the scheme did not prove a success as very few people came forth to take advantage of it. Another experiment of the same nature was recently tried by the Bombay Improvement Trust and a very interesting note on the subject was written by the Trust Engineer, Mr. Watson, giving plans and estimates of decent cottages intended to be built on the cheap land at Matunga at a cost averaging from Rs. 4,000 to 5,000, and showing how 4½ per cent. return could be made by charging Rs. 30 to 36 per month as rent for each cottage or Rs. 56 to 65 per month for 12 years on the hire-purchase

system, the occupant thereafter becoming owner, paying only Rs. $4\frac{1}{2}$ to $7\frac{1}{2}$ per month as ground rent to the Trust, besides the Municipal taxes. The scheme, it is stated, fell through owing to rise in price of building materials, and perhaps also because it did not offer a solution of the difficulty which any of the would-be owners might be confronted with, in case he was obliged to sell his cottage by reason of his transfer or through any other contingency.

The failure of these schemes, as contrasted with their marvellous success in the European countries, may perhaps have led their authors to think that Co-operative Building Societies would not be a success in this country, or at least in this City. And in a way their conclusions cannot be said to be far from being true. For if we examine the details of the Building Society scheme we find that though it has benefited a large number of persons in England and America, the persons who derived the benefit belong largely to the upper grades of the working classes. For before a person acquires a house with the help of the Society he must in the first instance provide himself with $\frac{1}{3}$ th of the price of the house as the margin of safety. Next he must repay the loan by instalments within 5 to 15 years, and this must involve payments of sums considerably above the usual rentals, it being simple arithmetic to understand that the shorter the period of repayment of a loan the larger will be the rate of instalments thereof, averaging a good deal more than the usual rentals, and in the case of ordinary tenants in our City who find it very hard to pay the rent itself, it would be next to impossible to pay both the rent and the instalments of the loan.

The Building Society cannot therefore be expected to cater for that class of people who are unable to provide for the margin of safety required by it nor to pay the monthly instalments at so high a rate over and above the usual rental, especially in bigger towns where the ground rent and the cost of construction must necessarily be high. Further, the ownership of a house might at times prove a doubtful boon when

the owner is at any subsequent time obliged for any reason to leave the neighbourhood ; for no Building Society undertakes to purchase back the house it helped its member to acquire, and he would be therefore obliged to sell it in case of emergency for any price it could fetch, with the result that the transaction might give a great set-back to his saving and frustrate the very object of the Society. It is no wonder therefore that many houses built by Co-operative capital under this system should have ultimately passed into non-co-operative hands or even of the slum-owners, as was evidenced from a return recently obtained in England. Moreover, the houses built were so scattered in different localities that it was not possible to co-ordinate or supervise the building operations at all.

Yet another important point discounts the value of the Building Society method. The rise and development of the science of public health in recent years has given a new turn to the housing problem. It is no more a mere economic question now as was understood by the persons who ushered in the Building Society movement. The requirements of the modern sanitary science are so very stern and imperative that they can no more be ignored with impunity in constructing our modern houses. And it is not merely the question of light and air indoor each individual house. The whole group of houses in a given neighbourhood are so to be situated in relation to one another as to allow full play to these gifts of nature. Not more than a limited number are to be built on a given area. Ample provision has also to be made for spacious roads, open spaces and grounds of recreation, all which are now recognized to be quite essential for efficient maintenance of the health in a city life. A solution of all these complex but inter-related questions would only be possible by a proper co-ordination of the whole body of the property owners in a given area through the agency of a controlling authority.

It is therefore evident that the Building Society method should be so recast as to meet all the difficulties and require-

ments indicated above. In the first place, we have to bring its benefits within reach of the people of a stratum much lower than that of persons at present counting among its membership in the European countries. For this purpose we have firstly to reduce the rate of monthly payments so as to bring it as near the scale of usual rent as possible. Suppose the repayment of the loan is spread over a period of very large number of years, say from 50 to 60 years, instead of 5 to 12 as in the Building Society scheme, then the monthly payments will not go much above the average rent payable for the premises occupied. For instance, in Mr. Watson's scheme the monthly rent of a house costing about Rs. 5,000 would be Rs. 36 including ground rent, rates, insurance and repairs; but if the occupier wished to buy in the house, he would be required to pay an additional monthly instalment of Rs. 28-8 to complete the purchase in 12 years, or if he wished to complete it in 10 years, the rate of additional payment would amount to Rs. 35-6 which is almost as much as the rate of rent itself. In other words a person desiring to purchase a house in 10 years will have to pay every month double the amount he would have had to pay by way of rent alone. On the other hand, if the payment of the price of the house were spread over a larger number of years, the rate of instalments could be considerably reduced. Thus the monthly payments above rent would be Rs. 14-4 for a period of 20 years, Rs. 7-8 for 30 years, Rs. 4-8 for 40 years, Rs. 2-12 for 50 years and only Re. 1-12 for 60 years. But these figures are worked out for a loan bearing interest at $4\frac{1}{2}$ per cent. per annum. If, however, money can be had at a still lower rate of interest, the monthly scale would come down to a considerably lower figure. In other words, the greater the number of years over which the instalments are spread and the lower the rate of interest you have to pay on capital, the smaller would be the scale of payments you have to make to enable you to own a house, making thereby the total monthly payments to approximate as near the usual rent as possible.

Next, we have to consider how to overcome the difficulty of the initial payment of the margin of safety, which in a Building Society amounts to one-fifth the price of a house. Here it must be remembered that you cannot dispense with it altogether. For experience in co-operative housing, and for the matter of that in any scheme of housing, goes to show that an efficient upkeep of house property would be almost impossible without a sense of ownership among the occupiers, which can only be created by giving them some stake in the property they occupy. We have therefore to devise some means whereby the occupiers will have a stake, without however reducing it to such a nominal figure as virtually to give a go-by to the principle, but at the same time the amount has to be brought down to such a level as to be within the reach of people of ordinary means. This can be accomplished by a new device. Firstly, reduce the initial payment to a sum equal to say half year's rental of the house you occupy to be paid by way of share capital, and this can be considered a sufficient stake to start with. Secondly, gradually increase the shareholding by small monthly instalments till the total payments reach the requisite margin. Thereafter the tenant will cease to make any payments except the usual rent. On the other hand, he earns not only a dividend on the capital paid by him but also a bonus on the rents paid, calculated after paying all the charges and expenses, a dividend or interest on capital and a contribution to the reserve or sinking fund. This bonus together with the dividend earned by the tenant is not to be paid out and out, but is to be credited to him till the total approximately reaches the price of the house or its part he may occupy.

Thus by the double contrivance indicated above you can so modify the method of the Building Society as to extend its benefit to a larger number of people than at present counts among its members in European countries. Moreover, you are not only saved from the heavy payments which the original scheme involved, but your stake in the property is gradually increased, the very profits which would have gone into the pockets of a landlord being diverted to give you ownership of the house you occupy.

But the difficulty is not completely solved yet. The scheme has to be further modified so as to render the ownership of houses capable of easy transfer. This can however be done if the Society itself retained the ownership, making the occupiers joint owners of the Society's whole property. Such a combination of ownership in a single body has other advantages as well besides those which will enable you to meet the difficulty indicated. The houses can be so located in relation to each other as to develop a feeling of neighbourliness among the several occupiers and to create a sense of corporate existence, giving rise to manifold healthy activities, such as combination of forces is capable of. Sanitation will be assured, as individual building activity which ignores the neighbouring owner is here replaced by an intelligent collective action to be directed by an efficient central representative body. The Society proceeds to its work by purchasing on its own behalf a sufficiently large plot of ground, especially in the outskirts of a town where land would be cheap, and light and air can be had in abundance, and develops the plot as a whole in such a manner as to limit the number of houses to an acre and to make sufficient provision for open spaces, grounds of recreation and other amenities to be owned by the members in common, all which they would not ordinarily have been able to enjoy if they individually acquired the houses. The scheme is capable of considerable further development and can be made to yield yet larger results if many such Societies would in their turn combine into a federated body for the attainment of common objects.

Let us now summarise our proposals. A number of tenants have to combine and form a Co-operative Housing Society on the new plan indicated above. Part of the capital should be raised by shares, not necessarily all owned by the intending occupiers but by their friends and sympathisers as well, the occupiers, however, being required to hold them each to the extent of half a year's rental to begin with, and thereafter gradually increasing the shareholding to the requisite extent, the amount thereof being made payable by small instalments. The remaining capital may be raised by loans

either in the open market or from public bodies or Government, if possible. The loan should be made repayable by instalments in 40 to 60 years. A moderate rate of dividend should be allowed on share capital, and the loan capital should bear as low a rate of interest as possible. Tenants are to be charged only the usual rents, and out of the proceeds are to be paid dividend, interest and all the charges and a contribution to the reserve or sinking fund, and the balance is to be divided among the tenants themselves as bonus in proportion to the rent paid by each of them. The smaller the proportion of your outgoings the larger will be the rate of the tenants' bonus. The dividend and bonus earned by the tenants is not to be paid in cash but is to be credited to them gradually to increase their stake till it equals the price of the property they occupy. This accumulation will further have the advantage of making fresh capital available to build more houses. The houses are to be built on sanitary principles with ample open spaces and common recreation grounds. A member wishing to leave the neighbourhood is at liberty to do so any time he likes, after giving only the usual notice. He will then be allowed to transfer all the shares held by him, and the Society also will help him in effecting the transfer. He is, however, at liberty to leave his monies with the Society as an investment, receiving only the dividend and interest thereon, till he may be in need of the amount or a part thereof. On the other hand, the staying tenants will not allow the vacancy to continue long, for they themselves will be the ultimate losers. They take all pains to find out a fresh tenant as it is to their interest that the vacancy should be immediately filled up. Further, as the membership of the Society has been brought within the reach of a larger class of people than in the case of the original type of the Building Society, there is sure to be always a long list of applicants waiting to occupy the vacancies, thereby giving a wide scope for selection with a view to preserve amenities of friendly neighbourhood. In a word, the Society on the new lines indicated will go to solve the housing problem much farther and in a more rational way than a model formed on the Building Society principle.

These are in brief the outlines of the new type of the Housing Society, which, there is reason to believe, would not only be popular in this City, and might also obviate the difficulties which brought the two schemes referred to previously to a premature end. But one might naturally question whether this new type of Society has had a fair trial anywhere within our knowledge or whether it is a mere product of my own brain. To this my answer is that the kind of Society which I have described has not only the merit of a fair trial, but has also the credit of well-deserved success. The outlines given by me are nothing but the description of the type of the Housing Societies doing excellent work in England under the name of Tenants' Co-partnership Societies. They have now become a recognised feature of the housing activity at present prevailing in that country. And though the older type of the Building Societies still continue to exist, yet the new model bids fair to eclipse the work of the older one both in extent of utility and in its far-reaching beneficent results.

Municipalities and Primary Education. Bengal.

THE following statements show the amounts which the Corporation of Calcutta and the individual Municipalities in the District Towns in Bengal have spent on primary education during each of the last five years, and the proportion of their total income and total expenditure, in each year, which these amounts represent in each case.

Expenditure on Primary Education by the Calcutta Corporation.

YEAR.	Receipts.	Payments.	Expenditure on Primary Schools.	PERCENTAGE OF EXPENDITURE ON PRIMARY SCHOOLS.	
				Receipts.	Pay- ments.
	Rs.	Rs.	Rs.		
1911-12	91,27,640	87,38,044	46,184*	·5*	·52*
1912-13	97,04,923	96,46,074	50,057*	·51*	·51*
1913-14	1,04,49,275	1,03,31,298	48,602	·46	·47
1914-15	1,16,43,764	1,08,96,084	51,678	·44	·47
1915-16	1,14,44,080	1,10,98,520	51,433	·44	·46

* N.B.—These figures are for expenditure both on primary and on technical education, figures for primary education alone not being available

Expenditure on Primary Education by Municipalities other than Calcutta.

Name of head-quarters Municipality.	1912-13.				1913-14.				1914-15.				1915-16.			
	PERCENTAGE OF EXPENDITURE ON PRIMARY SCHOOLS ON—				PERCENTAGE OF EXPENDITURE ON PRIMARY SCHOOLS ON—				PERCENTAGE OF EXPENDITURE ON PRIMARY SCHOOLS ON—				PERCENTAGE OF EXPENDITURE ON PRIMARY SCHOOLS ON—			
	Rs.	Income.	Expenditure.	Expenditure on Primary Schools.	Rs.	Income.	Expenditure.	Expenditure on Primary Schools.	Rs.	Income.	Expenditure.	Expenditure on Primary Schools.	Rs.	Income.	Expenditure.	Expenditure on Primary Schools.
Burdwan ..	1,617	1.1	.9	1,929	1,930	1.1	.9	2,319	2,319	.6	.5	2,319	2,319	.49	.46	2,319
Suci ..	316	1.6	1.5	315	311	1.7	1.8	311	311	1.05	1.5	311	311	1.57	1.56	311
Bankura ..	570	2.0	2.2	593	611	1.6	2.0	611	611	1.9	.96	625	625	1.17	.96	625
Midnapore ..	1,327	1.3	1.6	782	782	.7	.8	2,919	2,919	2.3	2.98	1,096	1,096	.93	.89	1,096
Hooghly-Chinsura ..	1,424	1.8	.4	1,128	1,128	.9	.6	1,039	1,039	.78	.58	1,118	1,118	1.05	1.08	1,118
Howrah ..	6,078	.5	.7	6,277	6,277	.5	.4	6,438	6,438	.61	.46	8,006	8,006	.73	.66	8,006
Krishnagar ..	811	1.5	1.4	811	748	1.6	1.6	748	748	1.27	1.25	1,000	1,000	1.69	1.51	1,000
Berhampore ..	555	.5	.5	678	678	.6	.5	745	745	.51	.67	809	809	.66	.61	809
Jessore ..	596	1.7	1.1	660	660	1.8	1.6	749	749	1.63	1.79	691	691	1.79	2.02	691
Khulna ..	504	1.5	1.3	525	510	1.7	1.8	510	510	1.66	1.45	515	515	1.76	1.76	515
Dacca ..	7,296	2.0	2.2	7,376	7,376	1.9	2.2	28,747	28,747	7.85	7.74	6,674	6,674	1.85	1.91	6,674
Fardpur ..	649	.9	.9	727	727	1.1	1.17	736	736	.95	.96	802	802	1.03	1.15	802
Barisal ..	681	3.0	2.4	427	427	1.8	1.8	491	491	1.68	1.6	589	589	1.83	1.92	589
Chittagong ..	2,254	.8	.8	841	841	1.3	1.5	739	739	1.22	1.31	736	736	1.20	1.03	736
Comilla ..	648	1.7	1.8	2,376	2,376	.6	1.8	2,563	2,563	2.03	1.32	2,870	2,870	2.33	.84	2,870
Noakhali ..	328	2.2	2.0	729	729	2.0	2.1	704	704	2.06	1.58	696	696	2.07	2.15	696
Rampur-Bodalia ..	1,246	3.1	2.4	328	328	2.2	2.3	326	326	1.99	2.02	330	330	1.92	1.92	330
Duapaur ..	1,455	3.0	3.0	1,304	1,304	2.8	3.0	1,295	1,295	3.81	2.57	1,156	1,156	2.30	2.22	1,156
Jalpaiguri ..	565	2.9	3.0	1,506	1,506	2.9	3.0	1,840	1,840	3.33	3.54	2,531	2,531	4.33	4.18	2,531
Darjeeling ..	2,060	2.3	2.7	582	582	1.9	2.2	688	688	2.18	2.32	626	626	1.91	2.16	626
Rangpur ..	1,338	7	.6	2,450	2,450	.8	.7	1,954	1,954	.59	.7	1,903	1,903	.61	.66	1,903
Bozra ..	584	3.7	3.9	1,321	1,321	2.9	3.1	1,519	1,519	3.64	3.87	913	913	1.91	1.75	913
Fabna ..	563	1.9	2.2	733	733	2.3	2.3	922	922	2.86	2.72	1,092	1,092	3.2	3.08	1,092
English Bazar ..	400	2.4	2.5	591	591	2.1	2.3	848	848	3.05	3.01	589	589	1.81	1.53	589
		2.0	2.3	479	479	2.2	2.2	534	534	2.44	2.2	480	480	2.1	2.02	480

Personal Hygiene.

[BY DR. M. R. SAMEY, M.D., D.P.H., (U.S.A.), M. R.
SAN. I., (LOND.).]

Drinking.

WATER is the universal beverage and almost all other beverages contain water more or less. When it is remembered that water forms from 60 to 70 per cent. of the body, it can be easily and readily seen how important an article of diet it is. In all the processes of metabolism or constant change, by which alone life and function are maintained, water plays a part. Thus in digestion assimilation takes place only after the food principle has been dissolved; in respiration the expired air is charged with moisture; in circulation the blood must be fluid; in the secretions, by which means the body machine is maintained in working order, and in the excretions by means of which the refuse is cast out, the presence of water is an indispensable necessity and a *sine qua non*.

To drink pure water is the custom of the natural man; to drink impure water is the almost invariable habit of the civilized man. In ancient times the provision of pure water for the people was looked upon as a national obligation. The ruins of the great aqueducts by means of which the water of mountain and sky and lake was carried immense distances to the cities, to-day cumber the ground whence the people now draw their water supply from polluted wells. It is only of recent years, and not till the ravages of cholera and typhoid had at last taught the people and municipal authorities the lessons which the sanitarians had never ceased to preach in season and out of season, that the absolute necessity of a perfectly pure water supply for drinking purposes has been recognized.

Nature's way of cleansing polluted water is two-fold—either to pass it through immense filter beds of gravel, beneath which it collects in underground reservoirs, which

may be naturally tapped by faults in the strata leading to the formation of springs of pure water, or by shafts purposely sunk ; or foul water is purified by means of the flow of a river, during which the solid particles sink to the bottom, and the organic pollutions, such as germs, etc., are oxidized and destroyed. Spring or well water often contains inorganic materials, dissolved out of the soil through which it has passed, such as lime, iron, etc. River or stream water is the pleasantest to drink, as it contains much air, and a small proportion of organic salts, which give it an agreeable flavour. Until, however, it is not considered a crime against humanity and the State to pollute a river or stream, unfiltered river water is dangerous to drink.

Water is purified in three ways : by filtration, by distillation, and by boiling.

Filtration.—A great variety of filters have been invented. The principle is the same in most of them ; namely, to pass the water through some fine granular material, such as gravel, manganic iron, or charcoal, with the intention of arresting the passage of suspended particles. None of these filters which are in ordinary use give complete security ; and in order that they should give even comparatively good results of a temporary nature, it is necessary that the filtering material be frequently renewed. It is now known that to confer safety, water should be bacteriologically pure, and free from the bacilli of disease. The only type of filter known that fulfils these conditions is the Pasteur-Chamberland model, and partially some of its imitations. In this filter the water is made to pass through a solid cylinder of porcelain base, specially tested to produce complete sterilization of the water. This filter is now used extensively in laboratories and wherever it is important that water should be entirely free from dangerous organisms.

Boiling.—Water is rendered quite harmless by boiling. In cases where it is not possible to have a pure water supply, where the water can only be obtained from a polluted river

or well, cases which are common enough in the country districts, it is more than advisable, it is necessary, for the preservation of health, to boil all the water used for drinking purposes. A most useful and, in fact, an indispensable addition to the traveller's luggage when going abroad is a little Etna and a spirit lamp. If he follows the simple plan of drinking well boiled water, he will escape the risk of imbibing the germs of typhoid fever or cholera. For all practical purposes bringing to the boil is sufficient, inasmuch as all the pathogenic organisms are killed. Boiling makes the water very flat and insipid, and it should therefore be aerated before drinking. 'Boil your water' is the sum and end of all the teaching of bacteriologists and sanitarians as a protection against cholera and infectious diseases carried by water.

The amount of water daily required to be taken varies considerably with the individual, some persons losing more by perspiration and the kidneys than others. From $2\frac{1}{2}$ to 4 pints a day is the usual quantity required and with most persons much of this is taken in the form of tea, coffee, or spirits. This brings me to the consideration of beverages.

Beverages are substances which by enabling food to be taken with pleasure and relish act as food accessories. They appear to stimulate digestion by acting on the digestive organs, either directly, or through the central nervous system.

Tea and Coffee.

The widespread use of these popular beverages is undoubtedly responsible for much of the nervousness and a considerable share of the dyspepsia so common among civilized people. For many years, the use of these narcotics was considered harmless, by physicians as well as the laity under the hazy notion and poetical appellation "the cup that cheers but not inebriates." But in recent years, many eminent physicians have become aroused to the fact that both tea and coffee are productive of much harm, and are protesting against their use. The active principle of both tea and coffee is a narcotic poison, a few grains of which will produce almost

instant death when given to a cat or dog. Indeed, so small a quantity as twelve grains of this poison has been known to produce very dangerous symptoms in a strong man, and cases are on record in which persons have been made insensible by the drinking of strong tea.

Some years ago, a case was reported in which an English physician lost a fine horse through the carelessness of the groom, who allowed a small quantity of tea to become mixed with the grain which fed the horse. The horse died with all the symptoms of narcotic poisoning. There is enough of this poison in a single ounce of tea to produce dangerous symptoms.

Coffee contains some less of the poison, but this does not diminish the harm arising from its use, as a larger quantity of coffee is usually employed than in the use of tea. In addition to this active principle, known as theine or caffeine, both tea and coffee contain tannin, which injures the stomach by contracting the blood vessels, and otherwise impedes digestion by precipitating the pepsin of the gastric juice.

Persons who use tea and coffee are subject to nervous trembling of the hands, headache, defective vision, and various other disturbances which indicate too clearly the poisonous character of these narcotics to leave any room for doubt respecting the propriety of their use. Both tea and coffee are particularly injurious to children, and wise parents, even though themselves wedded to their cups, will certainly withhold them from their children.

What is said of tea and coffee is equally applicable to cocoa except that if taken in appreciable quantity its composition appears to afford some nutrition.

Alcohol.

There is no subject respecting which such opposite opinions have been expressed as on the value of alcohol as an article of diet; and there is also no subject on which it is more difficult to express an unbiassed opinion, based on the clear and unmistakable evidence of science.

Alcohol is often called a stimulant, and so it is, if we use the word in its proper sense. The aptest definition of an English physician for a stimulant is "something that gets strength out of a man instead of putting it into him." A whip is a stimulant to a tired horse; it makes him go faster; but it does not make him any stronger. This is precisely the effect that alcohol has upon the human body. In connection with alcohol, I cannot do better than give the picturesque quotation from Dr. King Chambers: "That everybody recognizes in alcohol a power of blunting sorrow and pain, of checking the sensation of weariness, mental and bodily, of taking the points off the stings and buffets discomforts and nastiness of daily life; but also of corrupting the delicate appreciation of its higher delights; in short, of diminishing the sensibility to impressions in mind and body, and of lowering the receptive functions of the nervous system". He urges that for healthy persons alcohol should never be taken as a stimulant or preparation for work, but only as a defence against the injury done by work, whether of mind or body. Admitting that a certain amount of alcohol is often taken with pleasure, and is often required under certain conditions, its use is at the best a habit, and whatever may be said in its favour alcohol can never be regarded as an absolute necessity for healthy persons.

The evil effects of alcoholic indulgence are notorious. It is the fertile parent of vice and crime, the foster-mother of pauperism, and the constant generator of chronic poverty. In addition to these direct evils which can be laid at the door of tippling, the number of cases in which the bread-winner dies from acute disease from which the alcoholic habit deprives him of the power to rally, are too numerous to be gauged. The children are born with degenerate constitutions. The will power for good is weakened, and character and happiness destroyed.

In connection with 'Food and Drinking' it may be told, in fine,—the conventual and monastic view being not that of human life—that the wise man is he who can enjoy all

the good gifts of this world while keeping his body in subjection, his mind pure, and his life undefiled. To acquire property is not to be a thief, to be a husband is not to be a profligate, and to drink wine is not to be a drunkard. "Be ye temperate in all things," is the slogan both of the philosopher and of the prophet.

Studies in Malaria.*

[BY DR. K. RAGHAVENDRA RAO, MALARIA OFFICER &
ACTING MEDICAL OFFICER OF HEALTH, MADRAS.]

FOR nearly two years between 1911 and 1913 Captain Stott, I. M. S., as Administrative Medical Officer and Staff Surgeon to the Cantonment at Mandalay, had excellent opportunities to watch, from the standpoint of the Sanitarian, the progress of malarial outbreaks and "to estimate the influence of the different preventive measures" which were adopted. These valuable observations have been collected in his book "*Studies in Malaria*" printed and published by Messrs. Thacker, Spink & Co., Calcutta, and they form very interesting and valuable reading to the Sanitarian dealing with problems of prevention of malaria.

Captain Stott has recorded his observations and arranged them in five parts which deal with the nature of the outbreaks of malaria and the measures adopted for their prevention, including clinical and therapeutic notes on malaria. As one of the Administrative Staff on the Hospital Ship *Madras*, he has embodied, in his book, his experiences of acute and chronic malarial infection contracted in this Presidency and amongst men invalided from the army.

While at Mandalay, his attention was drawn to the marked difference in the admission rate for malarial fevers amongst the five distinct population groups of Fort Dufferin, Mandalay, varying from 62 to 1%. It was surprising that this enormous variation should be seen amongst groups of

* *Studies in Malaria*. By Captain Hugh Stott, I.M.S. Illustrated. Calcutta Messrs. Thacker, Spink & Co. Price Rs. 7-8.

individuals who were exposed to the same climatic influences and were collected together in the $1\frac{1}{4}$ square miles contained within the walls of Fort Dufferin! The answer to this is to be found in the diverse anti-malarial measures adopted by each population group.

The existence of two epidemics prior to his joining the Staff of Fort Dufferin having been ascertained, Captain Stott started his enquiries regarding the third epidemic of 1911-12. During this epidemic one Indian Regiment (91st Punjabis) was far more severely affected than the other (92nd Punjabis).

With its equable temperature, a meagre and capricious rainfall, with its somewhat enervating climate, with a high subsoil water level, and lastly with its proximity to the Irrawadi, Mandalay appears to be an ideal spot for the evolution of mosquito life. Within Fort Dufferin itself the moat and water channels not only tend to maintain a high water level but form excellent breeding grounds for malaria carrying An. mosquitoes. The most common anophelene mosquitoes in and around Fort Dufferin are *M. Culicifacies*, *N. Fuliginosus*, *M. Sinensis*, *M. Barbirostris* and *N. Rossii*, the first three of these being known as carriers of malaria. The breeding grounds are described under four headings, viz., “(1) along pucca banks where vegetation had been allowed to overhang the edge; (2) where the pucca banks had been broken away and the water had overflowed to form shallow pools; (3) where mud had silted up the pucca edge to form a fertile nidus for grass and weedy growth; (4) where there was almost no flow and thick green scum had accumulated on the surface, or even occasionally in slowly moving water, where only the sacred lotus plant grew;” and such grounds are the ones usually found specially suited to mosquito life in other parts. Wells did not form an important breeding ground for An. mosquitoes and one only of the six was found a veritable incubator of *Culicifacies* and a second well in daily use contained no larvæ at all—an observation fully confirmed by us here.

The anti-malarial measures adopted by each population group may be summed up into (1) total abolition of mosquito breeding grounds, (2) prophylactic quinine, (3) personal protection from mosquito-bite by the use of mosquito curtain; and the conclusions arrived at from the experience of 3 years anti-malarial prophylaxis amongst the five population groups are best expressed in Captain Stott's own words: "the abolition of mosquito-breeding grounds with a prevention of mosquito immigration on the one hand, or prophylaxis by mosquito nets and anti-larval measures on the other, proved far better practical modes of preventing malarial fever than the exhibition of a carefully supervised issue of prophylactic quinine."

It was thus that the prisoners in the jail, with not a single mosquito-breeding ground within and enclosed with a wall 16 feet high offering a barrier to mosquito immigration from without, suffered least from malaria (1·3%) although they did not take one gram of prophylactic quinine and they did not use mosquito-nets. The 91st Punjabis who relied upon the prophylactic quinine and nothing else suffered most (68·9%); whereas in the 92nd Punjabis who, since their advent to Bhamo in 1909, were under military orders to provide themselves with mosquito-proof curtains and continued to do so after their transfer to Mandalay at the end of 1909 and who also took prophylactic quinine twice weekly from 2nd June until December 1910 were immune from malaria in Mandalay.

In part II the value of prophylactic quinine is discussed in detail, and from an enquiry into the results of 12 months supervised issue of prophylactic quinine to one half of a regiment, the remaining half serving as a control, Captain Stott holds that prophylactic quinine is useful neither in the prevention of malarial attacks, nor in a diminution of its severity, should such an attack subsequently arise. If prophylactic quinine, in spite of its administration under military discipline, fails, Captain Stott questions its efficacy, when distributed amongst an undisciplined rural population, and rightly thinks that further enquiry on this point is a press-

ing necessity. This is as it should be in view of the demands for extended and free use of quinine by travelling dispensaries, nurses, and such other agencies, as a prophylactic against malaria. Further, such an enquiry will enable Malariologists to advise Local Boards and Municipalities with regard to the definite laying out of measures intended to eradicate malaria. For one thing, prophylactic quinine cannot be considered as a measure of permanent utility, requiring as it does regular and repeated administration and constant supervision to see that the unpalatable quinine is thus administered. Monies spent on such schemes would be utilised with better purpose and greater economy upon measures for eradicating mosquito-breeding grounds or mosquito-propagation (anti-larval) and for personal protection against the bites of mosquitoes. These are of permanent and lasting benefit and schemes inaugurated on sound bases would in the long run tend to greater economy.

Parts III and IV deal exhaustively with the clinical and therapeutical aspects of the subject and the author from his experience attaches very great value for quinine injections, (especially by the intra-venous and intra-muscular methods), in the bed-side treatment of malarial infection, especially of the graver and pernicious types. There are a number of physicians who are dead against injections of quinine but, as Captain Stott says, in algide and cerebral forms, where quinine cannot either be absorbed or its effects readily exhibited, nothing short of an intra-muscular or even intra-venous injection would save a life considered almost hopeless.

Salvarsan has been tried and found unsuccessful in the treatment of malarial infection. It neither prevents gamete formation, nor terminates the course of an infection. It is often positively dangerous and is certainly not a safe drug in the hands of an ordinary practitioner. Quinine is in every respect decidedly superior, in whatever manner administered, to Salvarsan and a combination of quinine and arsenic will do quite as well in every case of proved malaria.

In part V, from his experience of malarial infection in Messopotamia, Captain Stott considers malaria as causative of Hyperpyrexial heat-strokes and emphasises the importance of the routine treatment for malaria as a prophylactic of the latter condition.

The book is fully illustrated with excellent plates and a large number of charts, which render it very valuable, and the print and get up are very attractive.

The Amendment of the Madras Local Boards Act.

I.

THE suggestions made by the various District Boards in the Presidency for the amendment of the Local Boards Act have been published and are now under the consideration of the Madras Government. Except for some not very substantial changes introduced in 1900, the present Act has been in operation for the last 33 years. When it was enacted, it was claimed by the Hon'ble E. F. Webster who introduced the bill into the Madras Legislative Council in 1883, that, in regard to the extension and development of local self-government in all parts of the country, it embodied "the results of a loyal endeavour to meet the wishes of the Government of India." And so it did. The Act was on the whole a very liberal measure and Lord Ripon could do no more than ensure that the main principles which he laid down for the guidance of local governments were embodied in the legislation undertaken by the Madras Government. Though liberal in scope, the Act was so framed that it was mainly an enabling measure and a large discretion was reserved to the local government in the most important and liberal of its provisions. On the exercise of this discretion depended in a large measure the realisation of Lord Ripon's ideals and hopes. We know how this discretion has been exercised. As an instrument of popular and political education, the Act has been a signal failure. Many of

its liberal provisions have remained a dead letter. The district and taluk boards have been run by Collectors and divisional officers in their usual routine way. Speaking generally, the members of these bodies meet only to register the wishes of the President or to ratify his acts. Few of them have evinced any substantial interest in their proceedings. Of budgets and administration reports, most of the non-official members have hardly any notion and it is not uncommon for these documents to be placed before district boards without any explanation of what they contain and for members to acquiesce, without asking a single question, in the recording, by the Presidents, of resolutions approving of them. The valuable right of interpellating the president conceded by the amending Act of 1900 is hardly ever exercised and it is doubtful whether the majority of members are even aware of their possessing such a right. The Boards are, in short, lifeless bodies, and if local self-government is to be a reality, instead of a mockery as it is now, they should be so remodelled that every member will find it to his interest, realise it as his duty and feel himself at liberty, to participate intelligently in the proceedings of meetings.

It was hardly to be expected that district boards, constituted as they are, would make any proposals of a far-reaching character for reforming the present state of things. As a matter of fact, most of them have, under official leading strings, contented themselves with suggesting minor amendments here and there in the various sections of the Act. The new life in the country, however, demands a more thorough-going readjustment than a policy merely of tinkering with unsubstantial details in the working of the present Act. The time, therefore, seems opportune for a brief discussion of the broader aspects of local self-government in this country.

Of the three gradations of authority now recognised, viz., district boards, taluk boards and union panchayats, it seems essential that the union panchayats should be taken out of the Act altogether. A proposal of this kind was made by the

sub-committee appointed by one of the District Boards though the Board itself rejected it. In regard to Chapter V of the Act dealing with union panchayats, we find that the sub-committee made the following observations :—

“The sub-committee would prefer that the sections in this chapter with suitable amendments are codified into a separate enactment which may be called the ‘Small Towns Act’ and made to apply only to places of a distinctly urban character with a population of not less than 5000 inhabitants. Wherever control by the local board or its president over the panchayat or its chairman is provided in this chapter, they would vest such control in the Collector and Revenue Divisional Officer in case such a separate Act is passed.”

The Decentralisation Commission was also more or less of the same opinion. It recommended that such of the local fund unions as are of a rural character should be merged in their scheme of village panchayats and such as are of an urban character should be constituted into embryonic municipalities or ‘Town Panchayats’. There is a fundamental distinction between a ‘regional area’ like the district or taluk and a city, town or village. The functions to be discharged by local governing agencies in these two sets of areas vary in kind but more often in degree. The recognition of this distinction has important practical bearings especially in the determination of the question of the kind of executive best suited to each. The city, town or village has a compact jurisdiction and all parts of it are within easy reach and therefore susceptible of being daily attended to, if necessary. The component parts of ‘regional areas,’ on the other hand, are divided sometimes by considerable distances and can be reached only at intervals and after expenditure of time and money in travelling. These considerations indicate, roughly speaking, a general principle in regard to the personnel of the executive charged with the administration of local affairs. It is possible for an honorary chairman in a town or village not only to preside over the deliberations of the town or village council but also to personally carry on its executive administration ; and this he can

be expected to do with average efficiency. In a regional area, the same principle of average efficiency would seem to demand the entrustment of the executive administration into the hands of paid officers, trained in administrative work. It seems therefore, incongruous to lump regional boards with union town panchayats in one and the same enactment. Unions are really smaller municipalities. They were in fact originally intended to take the place of the minor municipalities which the Madras Government proposed to constitute in 1875; the idea was that they should develop later into municipalities fit for incorporation under the District Municipalities Act. As a matter of fact, some of them have since been so incorporated. Moreover, Unions do not fit into the hierarchy of regional authorities dealt with in the main by the Local Boards Act. The jurisdiction of a district board is conterminous with the combined jurisdiction of all the taluk boards in the district. But the sum of the jurisdictions of the unions in a taluk board area is not the same as the jurisdiction of the taluk board itself. We have come to recognise that large towns should be dealt with by a separate Municipalities Act and individual villages should be the concern of a separate Village Panchayats Act. It seems therefore, difficult to understand why the small town—which is midway between the large municipal town and the village—should alone be included in the same enactment with regional boards and be subjected to their control and supervision.

Proceeding to deal with the regional authorities, the first of the questions that we have to consider is whether the district board is necessary or may be abolished. Before the Decentralisation Commission, some Madras witnesses, both official and non-official, suggested its abolition but, after carefully considering the matter, the Commission rejected the suggestion. None of the district boards which have sent up proposals for amendment of the Act has proposed its own abolition. Opinion—at any rate the better opinion—during the last half a dozen years seems to have veered round in

favour of the retention of the district board. A member of the Legislative Council who moved a resolution for greater devolution of power to taluk boards and was apparently unwilling to break away altogether from his abolitionist friends, stated at a recent meeting of the Council: "An institution like the district board and its president, we can ill-afford to do without for the present." There are good reasons for holding that the district board is a necessity not only for the present but for as far ahead of us as we can see. The district as a unit of the central administration has acquired an individuality of its own. Some districts are the product of historical events; others are perhaps mere administrative creations. But all of them have so established themselves that each has evolved an *esprit de region* of its own. It is always useful and desirable to link, as on the continent of Europe, the areas of local government with the administrative units of the central government. There are functions of local government which are most efficiently and economically discharged on the basis of a large unit like the district, e.g., engineering establishment, maintenance of main roads, the training of local fund employees and so on. At the district headquarters is usually centred all the talent of the district and it would be short-sighted policy not to utilise it in the local government of the district. As a co-ordinating factor among the taluk boards of the district and as an intermediary between them and the central government, the district board has functions of obvious utility. The Government of this country is now carried on by a set of permanent officials who not only attend to detailed administrative work but shape policy also. The evolution of responsible government depends upon bringing these permanent officials under effective popular control. The Collector of a district who now wields large powers is untrammelled by popular checks of any kind except such public opinion as finds expression in newspapers. The Collector of to-day becomes a member of Government to-morrow and, in the latter capacity, has to defer to and carry out the wishes of the people

as expressed by their representatives in the Legislative Councils. He is bound to be more responsive to the popular will if, in the districts, he has had the education of being legally obliged to carry out the resolutions of a representative body. In order that the work of members of Legislative Councils may be characterised by sufficient independence and by an adequate recognition of their duties towards the public, it is equally desirable that they should have, in the district boards, a training ground for their acquiring the act of enforcing, in certain important matters, the responsibility, to the representatives of the people, of so important an official as the Collector. From the larger standpoint, therefore, of the new spirit in the country, the strongest argument for the retention of the district board as a unit in local administration is the opportunity which, with suitable changes in constitution and functions, it will afford for the political education both of the people and of the most powerful permanent official in the district.

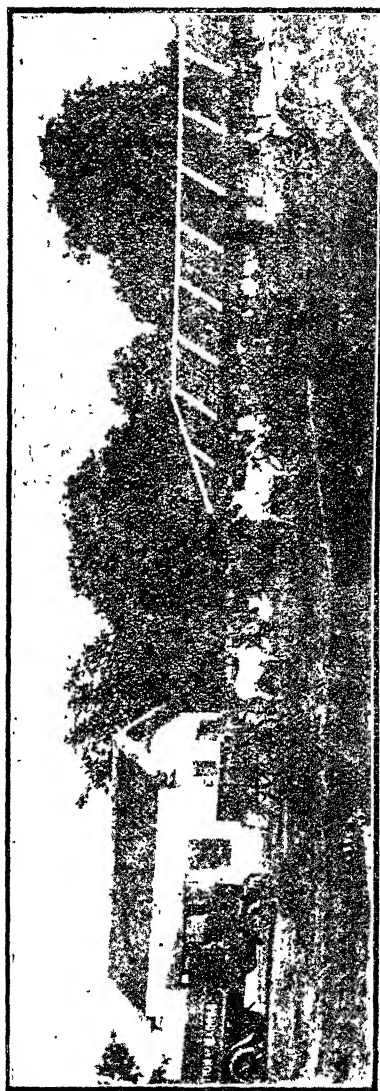
Motor Lorries and Municipal Conservancy.

[BY DR. C. SINGARAVELU, L. R. C. P. & S. (EDIN.), L. F. P. & S. (GLAS.), SENIOR ASSTT. MEDICAL OFFICER OF HEALTH, CORPORATION OF MADRAS.]

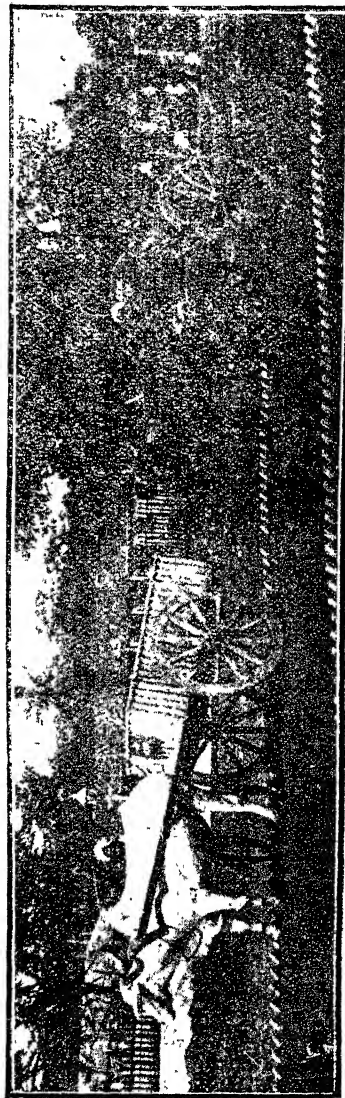
THE use of petrol motors for municipal work is gradually developing in the City of Madras. The Corporation have, for conservancy purposes, two big Thornycroft vehicles and two small Ford vans. The bigger ones are $3\frac{1}{2}$ ton vehicles and could hold 10 of the average cartloads of rubbish giving a load of three tons. The smaller vans are one ton vehicles and could hold nearly 3 cartloads of rubbish giving a load of nearly one ton.

Motor vehicles are not so economical for purposes of picking up street refuse as bullock carts are. But, on the other hand, when rubbish has been collected by ordinary rubbish carts in the several sub-depôts, the lorries are of immense

service in speedily removing it to its destination for disposal. There are four such sub-depôts in convenient centres of the city—Wall Tax Road, Broadway, Napier Park, and Goyathope



MOTOR LORRIES AND TYPES OF RUBBISH CARTS IN USE IN MADRAS.



SINGLE DRAFT CARTS.

—within 10 to 15 minutes' reach of bullock carts working in the localities specified. The distance from each of these sub-depôts to the final discharging places varies from $1\frac{1}{2}$ to $3\frac{1}{2}$

miles. The motor lorries do the distance from the sub-dépôts to the dumping ground or to the refuse destructors, discharge their loads there and return for fresh loads in about 25 minutes. They are worked from 7 a.m. to noon and again from 2 to 5 p.m. daily and make eight trips each per day. In the afternoon the lorries are chiefly employed for removal of silt, earth, &c.

The advantages derived from the use of these lorries are :

Time is considerably economised owing to the speed at which they can work. Much time hitherto spent by the bullock carts in going to, and returning from, incinerators and dumping grounds has been saved by unloading these carts at sub-dépôts from where the lorries run off loads in 25 minutes as against some hours of tardy journeying by several carts. The introduction of motor lorries has thus enabled the bullock carts to do twice as much collecting work in the streets and even more within a specified time thus resulting in the reduction of these carts.

When these lorries were introduced, the Corporation had not an adequate number of carts to cope with the work of collecting the city refuse. By the use of the motor lorries there has been therefore no perceptible reduction in carts. Nevertheless, it should be granted that the big lorry has taken the place of 30 additional rubbish carts which would be required if the lorry ceases to work. The maintenance of 30 rubbish carts comes up to Rs. 1,310, per month, and this amount is the saving in expenditure. Besides, there is the additional advantage of economy in labour.

Twelve scavengers are employed for loading and unloading each big lorry in the place of the sixty men required for working 30 rubbish carts. The introduction of the motor lorry has therefore brought about economy in labour to an appreciable extent, not to speak of the extra convenience afforded to coolies attached to rubbish carts, by way of minimising distances and reducing working hours.

The facilities thus afforded enable the coolies to engage themselves in private and paying work. The scavenging work of the city is rendered lucrative and the labour can be under appreciable control.

The close proximity of each of the sub-depôts to the working area of the rubbish carts concerned and the plying of motor vehicles from such sub-depôts to final discharging



LOADING A FORD VAN.



STREET CONSERVANCY.

places have made for economy in the use of bullocks. The double bullock carts formerly used are now being advantageously converted into single draft carts. These are indeed an improvement over the old style of carts inasmuch as they afford facilities for easy working in narrow streets and lanes. There is thus for every cart a saving of one bullock and of Rs. 10 per month in maintenance. By the conversion of half the number of the existing rubbish carts there will be a total saving of 116 bullocks *plus* the cost of their maintenance, Rs. 1,160 per month or Rs. 13,920 annually. If more lorries are introduced, the remaining double bullock carts may similarly be converted into single draft ones.

Motor lorries have also been a source of help in emergencies. On occasions of heavy rubbish, such as *Dasara*, *Deepavali* and *Pongal*, and immediately after cyclonic weather like the one last witnessed, the lorries made as many as twelve trips each a day. But for them the city could never have been kept clean and free from refuse. The relief thus afforded is worthy of notice.

The use of motor lorries has been of great help in the maintenance of a high standard of efficiency in conservancy work. The radius of each sub-depôt has been so fixed as to enable the bullock carts working within the area to make the required number of trips to cart away all the available refuse. Besides, it has materially helped the Conservancy Overseers in keeping the carts and drivers under close and vigilant supervision. It has further become possible to check the loads which went unchecked before the introduction of the lorries. Formerly when bullock carts had to cover a distance of 6 miles to and from the places of final disposal occupying three tedious hours, street scavengers and drain cleaners who were left behind were tempted to decamp or, if present, did no useful work. In the absence of these coolies the driver picked up as much rubbish as he was inclined to, and hastened away to complete the number of trips. Such scamping in work has become impossible, after the introduction of lorries and thus a higher standard of efficiency has been secured.

The introduction of motor lorries has effected economy in money as compared with bullock carts, as noted in the following comparative statement. The Thornycroft Lorry is also profitably employed for removing night-soil from His Majesty's penitentiary. This yields an additional income of Rs. 158 per month. A small Ford van is used for removing night-soil pails from bungalows. This has replaced ten night-soil carts.

To sum up, it may be stated that the use of motor lorries has brought about economy in time, reduction in carts, labour, bullocks and money, relief during seasons of heavy rubbish and consequently a high standard of efficiency. It has further reduced to minimum limits the period of stagnation of rubbish strewn in streets the speedy removal of which is very much desired in the interests of public health.

I. Statement showing the initial and monthly maintenance cost of a motor lorry.

	Rs.	A.	P.
Initial cost (Petrol Heavy Motor Lorry.)	12,850	0	0
Maintenance cost :—			
Petrol, 210 gals.	210	0	0
Cylinder oil, 20 gals.	36	4	0
Kerosine oil, 4 gals.	1	14	0
Cocoanut oil, $\frac{1}{2}$ gal.	1	8	0
Grease, 20 lbs.	5	0	0
Waste	3	8	0
Brasso	1	0	0
Soap	1	0	0
Average cost of repairs	80	0	0
Inspection charges	10	0	0
Staff	247	0	0
Total expenditure per month	597	2	0
Income derived from other sources (Penitentiary, etc.)	248	0	0
Net cost	349	2	0

II. Statement showing initial cost for manufacturing 30 rubbish carts and purchasing 60 bullocks and for maintenance per month.

		Rs.	A.	P.
Cost of 30 rubbish carts at Rs. 250 ...		7,500	0	0
Each bullock at Rs. 110 ...		6,600	0	0
		14,100	0	0
Maintenance at Rs. 35 ...		1,050	0	0
Sweepers at Rs. 8 ...		240	0	0
Sundries ...		20	0	0
		1,310	0	0

III. Statement showing the initial and maintenance charges of motor lorries when compared with the rubbish carts.

	Initial cost.	Maintenance per month.
Motor Lorry.	Rs. 12,850	349 2 0
Rubbish carts if employed to cope with the work. }	„ 18,300	1,310 0 0

The Cheyar Village Panchayats' Conference, (1916.)

THE Cheyar Division of the North Arcot District takes its name from the river that flows right through the middle of it and joins the Palar beyond. It consists of the two taluks of Cheyar and Wandiwash with a total area of 668 square miles and 429 villages inhabited by 310,975 people. The Taluk Board which administers to the local needs of this population consists of 9 members, one elected by the voters in each firka, and 3 official and 5 non-official nominated members. It is presided over by the Revenue Divisional Officer and has an elected non-official Vice-President.

Four Union Panchayats are at work under the Taluk Board in the small towns of Tiruvottipuram, Wandiwash, Dusi and Desur. On receipt of G.O. No. 1410 L. dated 2nd October 1915 and

under the instructions of the Collector and President of the District Board, the Revenue Divisional Officer and President of the Taluk Board submitted proposals for the constitution of panchayats under the Act in the bigger villages of Melsishamangalam, Perangattur, Anakavur and Marudadu and at the same time organized informal panchayats on a voluntary basis in selected villages in different parts of the Taluk Board area in the early part of 1916. Under his guidance, the Tahsildars of both the taluks who were also members of the Taluk Board formed some more panchayats, with the result that by the close of the year, 51 bodies came into existence. There were applications from 14 more villages, but these could not be attended to at once. This did not, however, stand in the way of panchayat work being undertaken in these villages, as the villagers went on working on their own lines inspired and encouraged by the example of their neighbours.

Every panchayat was in need of guidance and the Taluk Board felt that it would take too long for its members to visit the villages and give the panchayats the help they were in need of. The best means of meeting the situation appeared to be to assemble the panchayats in one place and not only give them the necessary advice but also ascertain the nature and amount of work done by them during the year. The gathering would also create a spirit of emulation and serve as a sort of recognition of the valuable work silently done. With this object in view, the Taluk Board at its meeting held on the 5th December 1916 resolved to convene a conference of the village panchayats on the 20th December and its members made arrangements to look to the comforts of the delegates from the panchayats.

The Taluk Board met on the morning of the appointed day, drew up a programme of the business to be transacted at the conference and the propositions to be submitted to it. It also appointed its Vice-President to welcome the delegates on its behalf and decided to recommend the election of its executive head as the President of the Conference. The Conference accordingly met in the Tahsildar's Office building at Tiruvottipuram at 2 p. m. on the 20th December 1916. The proceedings began with prayers for its success from representatives of the Hindu, Christian and Muhammadan communities. The Vice-President of the Taluk Board welcomed the delegates explaining the sanctity of the ancient Hindu Shrine in it

and expatiating on the value of co-operation. The President then delivered his speech dealing with the origin and growth of the movement, giving due credit to the efforts of those that contributed to the success so far attained and pointing out the directions in which organized and systematic work might be undertaken. The first resolution expressed loyalty to the British Throne and prayed for a speedy termination of the war with complete success to the cause of the allies. Reports of the work done by the various panchayats were then read and resolutions on the desirability of establishing similar panchayats in all the villages, the formation of co-operative credit societies in important villages, the necessity for the panchayats co-operating with the civil and military officers of Government to secure recruits to the Army and the various other directions in which they might devote their energies were duly proposed and carried. Certificates in recognition of the good work done were then presented by the President to selected members of the panchayats. The members of the Taluk Board were then At Home to delegates from the panchayats.

The delegates from the duly constituted panchayats and representatives of villages in which informal work was done numbered 200. There were also deputies from irrigation boards constituted to regulate the supply of water to individual holdings of the ryots. The reports read by the panchayatdars showed that a great deal of work was done in the villages. At least two of them rendered valuable assistance to recruiting to the military service. Kudimaramat to tanks and repairs to ponds containing drinking water were undertaken. Small areas were planted up and many applications for permission to grow trees on poramboke lands were put in; prickly-pear was removed in large masses and 106 villages were connected with the main roads, by improving existing cart tracks and forming new ones. The length of the earth-roads so laid out is about 84 miles. Two schools for Panchamas and 5 for caste Hindus and others were also worked by the panchayats.

The panchayats consisted of from 5 to 11 members, representing the different communities living in the villages. The Headman of the village is also the chairman of the panchayat generally, but there have been exceptions. Contributions for village works were mostly in the shape of labour, though a few panchayats adopted the cash payment system. Regular contribution lists were prepared

in a few villages, but in most each family sent a man whenever any panchayat work had to be executed. Those that could not contribute labour made payments in cash which were utilized for putting up a few lights in the streets on dark nights.

The proceedings of the conference were conducted in Tamil and the speakers on the resolutions were members of panchayats. These evinced great enthusiasm and interest.

Besides the 51 formal village panchayats and 14 informal bodies and 2 irrigation boards, there were working in the division, 37 forest panchayats constituted to manage blocks of reserved forests entrusted to their care and 31 co-operative credit societies which have exerted their most helpful influence.

We congratulate the Cheyar Taluk Board and their President on the success of the Conference and we commend their work to other Taluk Boards. It is praiseworthy that they have been able to do so much organised work even with the present unsatisfactory scheme of village panchayats.

The Benares Visheshwar Co-operative Dairy.

[BY SHIVA BALAK RAM.]

TO meet to some extent the great need for the supply of pure milk to the city, the idea of starting a dairy on co-operative lines was suggested to the Ahirs (Gwalas); a few of them took it up and the Visheshwar Co-operative Dairy was started and registered in 1911, under Act X of 1904. The Hon'ble Babu Motichand, C.I.E., is the Chairman of the Dairy and he has advanced money at 6% for the buildings, etc.

The shareholders, with the exception of a few public-spirited gentlemen are almost all Ahirs and they have so far paid Rs. 552 in shares. The value of a share is Rs. 10 but only half the value has, at present, been called. The dairy has borrowed about Rs. 3,000 for putting up cattle-sheds and staff quarters on a plot of land measuring about 3 bighas, which has been taken on a permanent lease. There are also two independent Co-operative Credit Societies which have advanced loans to the Ahirs for the purchase of cattle,

fodder, etc. These Credit Societies have themselves borrowed from the District Bank at 10% and they charge the Ahir members Rs. 15-10 per cent. per annum.

The Dairy purchases milk from the individual members at ten seers a rupee and retails it at eight seers a rupee. The milching, both in the morning and evening, is done at the Dairy in the presence of the Manager. The milk is collected in patent cans and is sent to the city under lock and key. Three shops have been hired in the city in different quarters, where milk is sold. The quantity of milk supply is at present only about 3 maunds a day, but the quantity has at times been 6 maunds.

The Dairy Farm is situated outside municipal limits—about 4 miles from the centre of the city. The transport difficulties are very serious difficulties and the solution seems difficult for such a small Dairy as ours. At the farm a pucca shed has been built for keeping cattle which number 80 heads.

Experience seems to point out that there is not much profit in this business if it is run on modern lines. The cost of management and of maintenance of the cattle is too high, the ensuring of sanitary and hygienic arrangements all mean money and it seems impossible to provide for these and also earn some profit for the shareholders by selling milk at 8 seers a rupee. On the other hand, people from whom better may be expected are not disposed to pay a price higher than the current bazaar rate for good, pure and fresh milk. The want of grazing grounds is another difficulty. I may add that the Dairy has not received any help from the local bodies.

Local Fund Engineers.

WE have perused with interest the draft notification of the Government of Bihar and Orissa prescribing the rules for the guidance of the District Council of Sambalpur in the management of its Public Works. The notification commences with a recital of the qualifications of the persons to be appointed to the Engineer and Subordinate

establishments required for the supervision of the public works in charge of the Council. The qualifications required of the Engineer are of a high standard but as the pay of the appointment is only Rs. 250—10—300, it does not seem to be attractive, and it is doubtful if persons with really superior attainments and qualifications will be attracted to the service. There is no provision in the rules for promoting really deserving upper subordinates to the District Engineer's post, and this in our opinion is a defect in the Rules.

The qualifications required for a subordinate are the same as those fixed for the upper and lower subordinates of the P. W. D., and the pay offered—Rs. 60—10—250 in the case of the former and Rs. 35—5—60 in the case of the latter—is sufficiently attractive.

2. The procedure to be observed in the case of appointing the establishment is described in detail. The appointment of the District Engineer is to be made by the Council and the Divisional Commissioner is given the power of vetoing it. The Council has all the disciplinary powers with regard to the Engineer and his subordinates, and in the case of dismissal the Engineer has the right of appeal to the Local Government.

3. The procedure to be adopted in the preparation of plans and estimates, and the powers of the various officers to sanction them, and the various accounts to be maintained are then described in detail. These are on the same lines as those laid down in the P. W. D. Code for the guidance of the officers of that department, and safeguard the interests of the Council in getting a proper return for the expenditure incurred.

4. On comparing the draft rules with those now in force in Madras, one is constrained to observe that whereas in the sister Province high qualifications are prescribed for a District Engineer on a lower pay, no such qualifications have been prescribed for the post of a Local Fund Engineer on a higher salary in the Madras Presidency. Further, it is an anomaly in

our Presidency that high qualifications are prescribed for the lower post of assistant engineer in the Local Fund Service when no such qualifications are prescribed for the Local Fund Engineer. There was an interpellation in the Local Legislative Council on this question, and the opinions of District Boards have been invited. We believe the matter is under consideration, and we hope that the Government will soon fix the qualifications for Local Fund Engineers.

Municipal Administration and Government Interference.

[BY K. V. SUBBA RAO, MUNICIPAL COUNCILLOR.]

ORDINARILY the fact that this person or that has been appointed to be the Principal of the Salem College cannot be a matter of much interest to the public; but as the recent appointment of a person to that post involves a violation of an accepted principle in local self-government, I seek the pages of the *Gazette* for a publication of the facts of the controversy. In most individual cases it may be quite possible for the Central Government to do something in a slightly more efficient manner than that in which a local authority has chosen to do it; but such interference would counteract the lesson of responsibility in local administration which is more important than the efficient performance of any individual administrative act. It is this wholesome principle that Government has unnecessarily infringed in exercising its reserve power of veto with reference to the Salem College Principalship and imposing an "Advisory" Committee on the Municipal Chairman for making a fresh nomination. Both the Vice-Chairman who made the first nomination and the Chairman on whom a committee was imposed, could and ought to have been trusted to act properly without outside interference.

Let me relate the facts. Mr. P. Seshadri having resigned his post, the Vice-Chairman of the Municipal Council, who had just assumed charge of his office of Chairman

pending the election of a new Chairman had to make arrangements to relieve Mr. Seshadri. The Principal is the lecturer in English for the College classes. Especially as the College fared badly in English at the last Intermediate Examination, speedy arrangements had to be made to secure a new Principal for the College. As no body could be expected to take charge of the office at such short notice, Mr. Shutie was put in temporary charge pending permanent arrangements. Mr. Shutie who is old and who had to retire from the very post on account of his old age could be only a stop gap. The local Rate-payers' Association demanded that permanent arrangements should not be postponed in the interests of the efficiency of the College. The Vice-Chairman invited applications for the post by advertisement in the newspapers and out of a large number of applicants chose Mr. U. S. Bhat of the Vijianagaram College. Mr. Bhat is an M.A., L.T., of more than twelve years standing in the profession and is at present a lecturer in English for the B. A. classes of the Vijianagaram College on a pensionable salary of Rs. 240 per mensem. Rao Bahadur K. Ramanujachariar, Principal of the Vijianagaram College, recommended Mr. Bhat strongly and as some of the councillors with academic qualifications who interviewed Mr. Bhat were well impressed with his attainments and personality, the Vice-Chairman nominated Mr. Bhat in the full hope that he made the best possible choice.

Mr. S. Aiyar was one of the applicants for the Principalship and he submitted his application through the Director of Public Instruction who recommended him in very strong terms. There was some trouble in the Tinnevely College and a Commission of the Madras University had to go to set matters right there. It is not suggested that Mr. Aiyar was responsible for the trouble, but public opinion at Salem was against him. Moreover, a by-law of the Salem Municipal Council, which retired Municipal servants at 55 years of age stood in the way of the Vice-Chairman nominating Mr. Aiyar who was nearing that age. The Vice-Chairman submitted his nomination through the Director of Public Instruction in

the usual course, when that officer took the opportunity to say that the personality of the Principal was more important than academic qualifications and that the Principal should be selected by the Chairman on the advice of a small committee of whom the Inspector of Schools should be a member. The Government thereupon sent back the nomination stating that they agreed with the opinion expressed by the Director of Public Instruction.

The rules framed by the Government under the Madras District Municipalities Act did not require that the Chairman should consult a committee—much less that the Inspector should be one of the persons to be consulted. The rules were specific that consultation with the Inspector was necessary only in the case of educational appointments carrying a salary of *Rs. 50 and less* per mensem. The Inspector was not competent to examine the College classes which were under the control of the University. The fact that a committee, with or without the Inspector, was not consulted could not therefore be legally a ground for the exercise of veto over a nomination made by the Vice-Chairman. The citizens of Salem met in a public meeting and passed a resolution of protest against the orders of the Government. The Municipal Council of Salem also passed a resolution of protest at a special meeting, all the fifteen non-official councillors joining the protest with only four officials dissenting.

The Hon'ble Mr. B. V. Narasimha Aiyar interpellated the Government and in doing so confined his questions to the inclusion of the Inspector of Schools in the committee. The Government gave a reply which was intended to cover the objections of the Council and of the public meeting as well. The reply not only asserted the view of the Government that they had a right to ask for a committee without any reference to definite rules or orders to support their position but added fresh grounds to justify their orders. The answer indicates that a Vice-Chairman in temporary charge should not have made the appointment. A Vice-Chairman in independent charge has all the powers of the Chairman and it will certainly land the

rate-payers and the Government into difficulty if the responsibility of a statutory officer is to be taken away in this manner. Will the fact of his being in temporary charge excuse neglect of any of his duties by the Vice-Chairman? Vice-Chairmen of Municipal Councils have to be in charge of the Municipal administration for nearly three months during an interregnum and if the officers view their duties in the light of this latest Order of the Madras Government there is another fruitful source of mischief for the municipal public. Nobody with any idea of self-respect will care to undertake the office of the Vice-Chairman if the interpretation of the status of that officer by the Government is correct. Moreover, if the presumption of want of competency on the part of short term officers is conceded, nothing would prevent the Government from questioning any of the acts of the Hon'ble Mr. Narasimha Aiyar who was elected Chairman for a broken period of a term. Our Vice-Chairman is a graduate in arts and law and a vakil of about ten years standing. He was returned to the Council more than once uncontested and has been doing executive duties as Vice-Chairman for nearly two years. He is an old student of the Salem College and is deeply interested in its welfare. *Prima facie*, therefore, he could not be presumed to be an inexperienced or irresponsible person, and there was no reason for the Government interfering with the appointment made by him without calling for an explanation from him.

The Hon'ble Mr. Narasimha Aiyar who took charge as Chairman of the Municipal Council appointed a Committee in obedience to the order of the Government and nominated another person who was selected by the Committee.

The facts of the case raise issues important enough for the consideration of the public. All lovers of Local Self-Government feel that the interference of the Government should be limited to cases of perverse conduct on the part of local bodies. In any event, the Government should not go beyond the rules framed by them with a view to cancel an apparently proper choice,—even on the doubtful ground that experts tender them an advice to do so.

The Srinagar Municipality.

THE Annual Report of the Srinagar Municipality for the year 1915-16 is before us. In spite of the fact that two-thirds of the members of the Municipality are nominated and only a third elected, the experience of the President does not seem to be on a par with that of Local Bodies in British India. As will appear from page 2 of the Report, in spite of the preponderance of nominated members, propositions brought forward by the President on the initiative, apparently, of the Government, seem to have evoked considerable opposition. It is also noteworthy that the Committee seems to insist on retaining in their hands the powers of appointing and dismissing Municipal Servants which under the Municipal Regulations have been delegated by the Durbar to the President.

There are one or two matters in which the Municipality has exercised a very wise control over certain industries. Other Municipalities might well profit by the initiative taken in Srinagar of controlling soda-water factories by a system of licenses granted after due inspection of the shop, machinery, chemicals, etc. Three-sevenths of the total Municipal income is spent for conservancy, but as pointed out in the Report, even that is not sufficient for Srinagar. Any one who has lived there will see that owing to the extensive use made of the waterways and the comparative inutility of the streets for traffic, the latter are kept in an extremely neglected and filthy condition. It is also a pity that the splendid Jelum canals are utilised for drainage purposes. The public health of Srinagar, with its magnificent climate would vastly improve if only prompt measures were taken to devise a system of drainage by which sewage and filth could be carried far away from the canals. In the removal of night soil and rubbish, Srinagar seems quite up to the modern practice. The extensive water power available in the locality makes electric illumination cheap. Anyone who has even passed through the city will

recognise that its magnificent natural advantages have as yet been turned into little account and it is yet possible to make the city an ideal residence for the tourist and for the seeker of health, if a good underground drainage system were attempted even at great cost and the practice given up of discharging dirty water into the river and its branches. It is also a matter of complaint that owing to the deficient supply of pipe water, the dirty canal water is used by the ignorant inhabitants for drinking purposes and one is not surprised therefore that the public health of the city is not satisfactory.

One has to recognise that, in Srinagar, the chief source of income is octroi, but even with the funds at the disposal of the Municipality, in a climate which has been likened to portions of Switzerland, it is lamentable that the death-rate was considerably over the birth-rate. Few places in Asia are more worth developing than this and it is to be hoped that the Maharaja will bestow careful attention to the present unsatisfactory state of the drainage system and public roads as well as of the general sanitation of the city.

Government Orders & Notifications.

[Madras.]

TOWN EXTENSION.

THE following memorandum containing a statement of the principles and rules to be followed in working out and submitting proposals for town extension has been circulated to all local boards and municipal councils for guidance :—

The duty of organizing extensions to meet the growing needs of the community in urban areas ordinarily vests—

- (a) in municipal councils, in the case of municipal towns, and
- (b) in local boards, in respect of unions which are also “ towns ” according to the census definition, and villages possessing important railway stations or industrial undertakings which employ or attract a large population.

2. Such schemes fall broadly into two classes :—

- (a) those for the well-to-do and middle classes, and
- (b) those for the poorer classes.

3. In regard to extensions for the well-to-do and middle classes, the Government laid down their policy as follows in G.O. No. 237 M., dated 7th February 1913 :—

“ Whenever there is any considerable demand on the part of the middle classes for the provision of house-sites in healthy localities, the Council should prepare a scheme for the acquisition of sites in a suitable quarter, determine the sizes of the plots to be taken up and work out the cost of acquisition, the laying out of roads, the provision of drains, water-pipes, etc. The whole of such cost will eventually devolve upon the purchasers. Before sending up an application for assistance to the Government, which can only take the shape of a loan carrying interest at the usual rate and repayable in, say, four years, the Council should secure a deposit of 25 per cent. of the estimated cost from each intending purchaser and a written undertaking to pay the balance of the estimated cost as soon as the acquisition proceedings are completed and the lots are sold or within a period not exceeding four years from that date.” The main principle is that such schemes should, as a general rule and in the absence of special circumstances, be organized on a remunerative basis.

4. In the working out of a scheme of this kind, the following questions arise for consideration :—

- (a) the selection of the land to be acquired,
- (b) its development—construction of roads and drains, the water-supply and lighting arrangements, the reservation of the lands required for communal purposes, the marking out of the individual house-sites, etc.,
- (c) the procedure to be adopted in allotting the house-sites,
- (d) the arrangement necessary for enforcing the observance of building regulations and sanitary conditions, and
- (e) the ground rent or assessment to be paid on the land.

5. It is very essential in selecting a site that the local body should satisfy itself that it is acceptable to the persons for whom it is intended. The Sanitary Commissioner must also be consulted as

to the suitability of the site and its lay-out and a careful and accurate estimate should be framed of the cost of constructing roads and drains, etc. and of all the improvements necessary before the land can be built upon. Detailed plans showing the lay-out of the site, the roads and drains, open spaces, arrangement of building-sites, etc., should be prepared and submitted for approval through the Sanitary Commissioner. In the actual working out of the scheme the sanctioned plans should be strictly adhered to. If deviations are necessary, special sanction should be obtained.

As soon as the scheme is sanctioned, the Council or local board should collect a deposit, which should be the whole or a fixed proportion of the cost of acquiring the land and developing it, from the would-be purchasers; raise, if necessary, a loan of the balance required; and apply to the Collector for the acquisition of the land under the Land Acquisition Act.

After the acquisition proceedings have been completed, the necessary improvements should be effected and the lay-out as sanctioned completed, before any further action is taken. In some extensions, plots have been sold before the roads and drains were made, with the result that the Councils did not realize on the sites as much as they could have done and the condition requiring building within a certain period was rendered ineffectual.

6. The individual sites should next be allotted. Ordinarily, the procedure should be sale in auction, which may be restricted to particular classes of persons, if necessary. Where special circumstances require that the sale should be restricted to *bona fide* residents of a locality, a condition prohibiting alienation without the Council's permission for a term of years should be imposed, in order to prevent abuse of the concession.

7. As regards the building and other regulations to be enforced, the Government have in G.O. No. 1130 M., dated 1st July 1916, issued draft rules for regulating schemes for extension of towns undertaken by municipal councils and building operations within the same. As laid down in paragraph (25) of these rules, every notice of sale of a building-site and every sale deed in respect thereof should embody rules (8) to (24) in that Order and also the penalties laid down in that rule. Any other special conditions that may be found necessary for local reasons should also be incorporated.

In the larger towns in which people are accustomed to building on lease-hold lands, it would be advantageous, if the councils retained the ownership in their own hands and sold perpetual lease-holds with a nominal rental reserved.

The rules as regards the levy of ground-rent on town-sites offer some difficulties in working out extension schemes.

When private lands, not assessed to ground-rent but paying only the ryotwari assessment, are acquired and laid out and sold as house-sites, ground-rent becomes leviable under the rules from the occupants of the sites. If the plots are sold subject to the payment of ground-rent (which must be nearly equal to the competitive rent) councils will not be able to recover their outlay on the acquisition. In view of this difficulty, the Government have ruled that, in such cases, the lands will ordinarily be subject to the same assessment as was levied on them before acquisition. Similarly, where the land acquired is already assessed to ground-rent, this rate will ordinarily be continued after the acquisition.

The general question of ground-rents in its bearing on the financing of town extension schemes is under consideration and pending the issue of orders, the question of rates of assessment or ground-rent to be paid by the Council and to be levied from occupants should be specifically raised when proposals for financing schemes are submitted.

9. As a concrete instance of arrangements which the Government consider suitable in organizing such extensions, the following memorandum to the Madura Municipal Council on the Sökkikulam extension may be found useful:—

“The Government approve of the Council's proposal to organize the Sökkikulam extension. The Council is requested to work out a detailed scheme on the following lines and submit it for the approval of Government:—

“(i) The private lands required for the scheme will be acquired on behalf of the Municipal Council under the Land Acquisition Act. The Council should recover the estimated cost of these lands from the applicants for the sites before proceedings under the Act are initiated.

“(ii) The improvements to the block recommended by the Sanitary Commissioner should be carried out and the entire area

laid out under the direction of the Municipal Council in consultation with that officer. The portions required for roads, drains, wells and other public purposes should be set apart and the house-sites marked out. Careful estimates should also be prepared of the cost of making the roads and drains and the other improvements recommended by the Sanitary Commissioner. The cost of the land required for communal purposes and the cost of making the roads and drains and of the lay-out should be added to the total cost of the sites and recovered from the persons to whom they are allotted.

“(iii) The roads, drains, etc., in the area will vest absolutely in the Municipal Council, which will maintain them and will also control the lighting and other arrangements.

(iv) Each person to whom a site is allotted will pay—

“(a) a premium,

“(b) a nominal rental to the municipality, and

“(c) such assessment or ground-rent as may be levied by Government.

“(v) The premium should be fixed in respect of each site, having regard to advantages of position and other circumstances, and to the fact that the premia should, in the aggregate, make up the total cost of the scheme including that for providing for persons, if any, evicted from their dwellings. The rental to be reserved by the Council will be a nominal amount to be paid every year. The ground-rent payable to Government by the occupants of the site after acquisition and allotment will be the same as the assessment now fixed on the lands, but will be liable to revision at resettlement.

“(vi) Each occupant will execute a permanent lease-deed to the Municipal Council agreeing to the above conditions. The lease-deed should in addition contain provisions (a) prohibiting transfers without the permission of the Municipal Council for a term of years and (b) ensuring the strict observance of the town extension rules printed in G.O. No. 1130 M., dated 1st July 1916.”

10. It is desirable that efforts should be made to organize Co-operative Building Societies in connection with these extension schemes. Apart from the advantages these offer to members in enabling them to raise loans where necessary and to effect economies in the purchase of building materials and in actual construction, they are valuable to councils as the managing members will assist

in the enforcement of building regulations and also take over such details as the allotment of individual sites to members, collection of the amounts due by them, etc. The advantages to Municipal Councils in dealing with the managing bodies of such societies instead of with a large number of individual owners, and in enlisting their support in enforcing building and sanitary regulations are obvious.

11. In organizing extensions for the poorer classes, the same procedure as has been indicated above should be adopted in regard to the acquisition of sites, the lay-out, etc. Here two points must be insisted on—

(a) the building-sites should not be allotted until the land has been improved and laid out completely, and

(b) where the re-housing scheme is, as happens in most cases, intended for persons evicted in connection with proposals for relief of congestion, actual eviction must not take place till the sites in the new extension have been allotted and a sufficient time, not less than six months, has been allowed for building. In two respects, the policy enunciated in regard to extensions for the well-to-do classes will have to be departed from, in extensions for the poorer classes:—

(a) sale in auction will not be possible as a general rule in these cases, and

(b) they cannot be worked out on a remunerative basis. The local officers should, in these cases, propose, with due regard to the economic condition of the classes for whom the extensions are intended, the basis on which the sites should be allotted. No general principle can, again, be laid down in regard to the financing of these schemes. There will, almost always, be a net loss on them and whether the Council should bear this or the Government should make a grant is a question for decision on the merits of each case, with due regard to the nature of the scheme, the financial position of the Council and other factors. [G. O. No. 1977 M., dated 18th November 1916.]

[Mysore.]

FORM OF REPORT OF INSPECTION OF VILLAGES UNDER THE VILLAGE IMPROVEMENT SCHEME.

With reference to paragraph 8 (iii) of Government Order No. R. 9859-908—L. R. 15-15-154, dated 24th April 1916,

issuing instructions in regard to the more efficient working of Village Committees and defining the scope for their higher activities, the appended form of Inspection Report is issued for the use of officers inspecting villages to readily obtain a clear idea of the condition of the villages, and the progress made in the working of the Village Improvement Scheme.

2. Inspecting Officers are expected not merely to record their replies to the several questions but also to issue suitable instructions then and there for the early rectification of any omissions and defects that may come to their notice during the course of their inspection. The more important instructions may also be recorded in the Village Inspection Book for the information and guidance of the Village Officers and others concerned.

3. Every Amildar and Deputy Amildar should inspect not less than 50% of the villages in his charge at least once a year. The Sub-Division Officer and Deputy Commissioner should endeavour to visit as many villages as possible in each taluk during the course of Jamabandi and other tours.

4. A copy of the Inspection Report should be attached to the Amildar's Monthly Journal so that the Sub-Division Officer and Deputy Commissioner may be kept informed of the condition of the villages inspected by the Amildar.

5. The Superintendent, Government Press, is requested to print and keep in stock a sufficient number of forms of the Inspection Report and supply the same to the Deputy Commissioners on indents. [G.O. No. R. 6164-73—L.R. 12-16-63, dated 15-12-1916.]

INSPECTION REPORT OF THEVILLAGE OF.....TALUK.

Name and rank of Inspecting Officer.

Date of inspection.

Time spent in inspection.

Date of previous inspection and name and rank of Inspecting Officer.

Questions.

1. What is the general sanitary condition of the village? Give results of inspection under vital statistics, water supply, epidemics, general health of the inhabitants, vaccination, etc.

2. (a) What is the general economic condition of the village?

(b) What is the average amount of indebtedness or prosperity?

(c) What are the chief industrial occupations of the people?

GENERAL ADMINISTRATION.

3. Is there an Improvement Committee for the village?

(a) Has the Committee been maintaining properly the record of progress prescribed in Government Order No. 5605-14 -L. R. 10-14-71, dated 26th December 1914?

(b) Are the monthly returns submitted to the Amildar punctually?

4. (a) Is the Committee maintaining besides this a separate book for recording the proceedings at meetings?

(b) How many times did the Committee meet during :—

(i) last year.

(ii) the current year till the date of inspection for purposes of discussing the general administration of the affairs of the village?

II. WEEKLY HALF-DAY LABOUR.

5. State how the voluntary system of labour for improvement is working. Do the villagers meet every week systematically? Is any compulsion exercised? Is any record maintained? Note result of examination.

6. What are the works executed in this way and what is their approximate value?

III. GRANT-IN-AID-WORKS.

7. What are the works executed with the aid of Government grants-in-aid?—

(i) Last year.

(ii) Up to date.

8. (a) What is the total value of such works?

(b) How much of it did the Government grant?

(c) What is the amount contributed by the villagers?

- (i) in cash.
- (ii) in the shape of labour.

IV. WEEKLY MEETING FOR SPREADING USEFUL INFORMATION.

9. What is the week day prescribed for this purpose for the taluk?

10. How many times have the villagers met for this purpose and what generally is the nature of the work they do at those meetings?

11. Has the Committee been supplied with the village prosperity rules and other booklets and publications issued under the Village Improvement Scheme and also a Kannada Edition of the Village Improvement Manual? Are these read at these meetings?

V. VILLAGE FUND.

12. (a) Have the villagers collected a common fund distinct from the amount collected in lieu of personal labour and special contributions to supplement Government grant?

(b) What is the amount of the fund?

(c) At what rate is it collected?

(d) On what objects have the funds been expended?

What are the newspapers subscribed for?

VI. VILLAGE STATISTICS.

13. Were the village statistics compiled and submitted in time last year?

14. How are they compiled? Is a house to house enquiry made, or are the figures adapted simply from the Kaneshumari?

15. Is there any appreciable divergence between the population as recorded in the latest return and the population according to the census? If so, explain the cause.

Note.—Differences either increase or decrease of less than 5% may be ignored.

16. What is your opinion about the accuracy and reliability of the statistics?

VII. EDUCATION.

17. Is there a Reading Room or a Library in the village?
What are the newspapers subscribed for?

VIII. AGRICULTURE.

18. (a) Are the Registers of agricultural statistics prescribed by Government in their Proceedings No. R. 10838-48—Agri. 197-08-2, dated 23rd June 1909, being properly maintained?

(b) What was the general condition of the seasons and crops in the village during the past year?

19. How many improved agricultural appliances are in use in the village?

20. Have the villagers taken any interest in tree planting according to the circular of 18th March 1916 and what have they done?

21. Has any attempt been made to improve the growth of grass in gomal lands and to raise fodder crops?

IX. INDUSTRY.

22. (a) What are the principal occupations of the people?

(b) How many agriculturists follow subsidiary occupations?

What are they?

What other subsidiary occupations do you think can be introduced?

X. HIGHER DUTIES AND ACTIVITIES.

23. Are any higher duties and activities such as those mentioned in para 4 of Circular No. R. 9859-908—L. R. 15-15-154, dated 24th April 1916, being pursued in the village? If so, mention them.

XI. IMPORTANT WANTS OF THE VILLAGE.

24. Has a list of the principal wants of the village been maintained, arranged in order of importance together with such information as may be available as to funds, agency, and time of completion?

If so, reproduce the list.

State what steps are being taken or are proposed to be taken to meet these wants.

VILLAGE IMPROVEMENT SCHEME.

The primary or obligatory duties to be done by every Village Committee and the higher duties and activities to be attempted by as many of them as possible have been indicated in the Circular issued with Government Order No. R. 9859-908—L. R. 15-15-154, dated 24th April 1916. Government agree that some special inducement is necessary for sometime to create a spirit of emulation and healthy rivalry among the villages in each taluk in effecting village improvements.

2. Government are accordingly pleased to direct that, tentatively for a period of three years, a prize of the value of Rs. 50 (not in cash) be awarded to the village showing the best results under the Village Improvement Scheme in each taluk and sub-taluk and to issue the following instructions in the matter:—

(1) The Standard of good work should have reference to the activity shown under each of the essential and higher duties referred to in the Government Order of 24th April 1916 mentioned above.

(2) The Sub-Division Officer will select, subject to the approval of the Deputy Commissioner, the village in each taluk in his charge, deserving the prize.

(3) The prize will be an annual one and will take the form to be fixed at the discretion of the Deputy Commissioner, *e.g.*, a silver cup or any other mark of recognition to be kept in the village chavadi.

(4) The Deputy Commissioners of Districts should submit, not later than 31st August, through the Revenue Commissioner, a list showing the names of villages selected by them for the award of prize with a brief description of the important items of works and improvements carried out by each such village. After approval by Government, the prizes may be paid to the Village Committees, the charge being debited to the Village Improvement allotment of the district concerned. [G. O. No. R. 6284-97—L. R. 15-15-254, dated 19-12-1916.]

Legislative Intelligence.

[Bombay.]

THE following Bill, together with the Statement of Objects and Reasons accompanying it, is published in accordance with Rule 28 (5) of the Rules for the conduct of business at Meetings of the Legislative Council of the Governor of Bombay:—

BILL No. 1 of 1917.

A Bill to provide for increasing the number of elective members on district local boards and other matters.

Whereas it is expedient to make provision for increasing the number of elective members on district local boards and other matters; It is enacted as follows:

1. This Act may be called the Bombay District Local Boards Short title. Act, 191 .

2. (1) The Governor in Council may by notification in the *Bombay Government Gazette* direct that the provisions contained in part I of the schedule (hereinafter referred to as the said provisions) shall apply with reference to any district local board from a date to be specified in such notification.

(2) Throughout the period during which such notification remains in force—

(a) the said provisions shall apply with reference to such district local board in all respects in the same manner as if the said provisions had been enacted in the Bombay Local Boards Act, 1884; and

(b) the operation of the portions of the Bombay District Local Boards Act, 1884, which are referred to in part II of the schedule shall be suspended and shall not apply with reference to such district local board.

3. When the said provisions have been applied with reference to any district local board, the term of office of the members of such board who are in office at the date specified in the notification issued under section 2 shall, notwithstanding anything contained in section 14 of the Bombay Local Boards Act, 1884, determine on such date as may be specified by the Governor in Council in such notification.

THE SCHEDULE.

Part I.

Provisions which may be applied by notification: see section 2 (1).

1. (1) A district local board shall consist of—

(a) elective members, and

(b) nominated members, that is to say, such persons as may from time to time be appointed, by name or in virtue of office, by the Commissioner.

(2) A majority of the members of the whole board, inclusive of the president, shall be elective members and not more than one-half of the nominated members shall be salaried servants of Government.

2. The members of every district local board who shall first be elected and nominated under these provisions shall commence their terms of office on such date, and (notwithstanding anything contained in section 14 of the Bombay Local Boards Act, 1884)

Bom. I of 1884.

shall hold office for such term, as shall be notified in this behalf for each district by the Governor in Council.

3. The Governor in Council may make rules—
Cf. Bom. III of 1901, s. 11.

(a) prescribing the number and character of the constituencies by which the elective members of a district local board shall be elected, and the number of members to be elected by each constituency;

(b) prescribing the qualifications of candidates and voters;

(c) regulating generally the preparation and revision of lists of voters, and limiting the time for applications for enrolment in such lists;

(d) determining the manner in which and the authority by whom any objection to the entry or omission of names in such lists may be decided and determining the authority to whom appeals shall lie; and

(e) regulating generally such elections.

Part II.

Portions of the Bombay District Local Boards Act, 1884, to be
Bom I of 1884. suspended: see section 2 (2) (b).

Sections.	Extent to which suspended.
5	The whole.
7	"
13	"
16	"
17	The words "and section 7 (c) respectively" and the words "or section 7 (c)."
69 (b)	The words "and 7 (c)."

STATEMENT OF OBJECTS AND REASONS.

The object of this Bill is to make legislative provision for modifying the constitution of district local boards, so far as circumstances at present admit, in accordance with the recommendations of the committee recently appointed in the Bombay Presidency to report on the extension of local self-government. The Bill provides for the increase of the proportion of elective members of such boards and the formation of special constituencies. It has been framed to give early effect to such measures as need not be deferred pending the general revision of the Bombay Local Boards Act, 1884, which cannot be undertaken for the present.

[Bengal.]

RURAL WATER SUPPLY.

The Hon'ble Kumar Shib Shekhareswar Ray asked whether the Government were considering the advisability of withdrawing the Sir Andrew Fraser circular which insisted upon a local contribution of one-third of the total expenses of excavating tanks, etc.?

Government replied :—

The Circular of 1904, to which the Hon'ble Member refers, laid down *inter alia* that one-third of the cost of any project for improving the supply of drinking water in rural areas should be met from public subscriptions before a Government grant was made. This condition was withdrawn by the Government of Eastern Bengal and Assam in 1908 and by the Government of Bengal in 1911. The orders contained in the Circular of 1904 applied only when grants were made by Government to District Boards for the improvement of the rural water supply and not when District Board spent money for this purpose without receiving a Government subvention. As there appears to be considerable misapprehension on the subject, a circular will shortly issue explaining the position.

POWERS OF LOCAL BOARDS.

The Hon'ble Babu Bhabendra Chandra Ray asked what steps the Government were taking to invest Local Boards with larger powers in the management of local affairs.

Government replied :—

The powers of the Local Boards in the management of local affairs are limited by the provisions of the Local-Self Government Act, under which they act as agents of the District Boards. The Government of Bengal are contemplating legislation for a reconstitution of the system of Village Self-Government and in the meantime do not propose to take steps to secure larger powers for Local Boards.

The Local
Self-Government Gazette.

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[1917

**Local Bodies and Elementary Education
in Bihar and Orissa.**

THE Government of Bihar and Orissa have recently issued a very important circular on the subject of elementary education in that province. For some time past this question has engaged their attention, and in 1914 a committee was appointed to consider the problems in respect of elementary education peculiar to that province and submit a report. Basing their conclusions on this report, the Government have made a declaration of policy 'which should be followed in further developments,' and they add that 'though no great advance is possible till substantial aid to local funds is forthcoming from provincial revenues,—and such aid is out of the question in present circumstances,—yet the Lieutenant-Governor in Council considers it desirable that the general policy to be followed should now be laid down, and that local bodies should endeavour to work up to it as far as their present resources permit.'

The problem of elementary education, say the Government, resolves itself into two parts—that of the higher standard of education given in Upper Primary and Middle Vernacular Schools and that of the Lower Primary standard provided by Lower Primary or Infant Schools, and each is treated in the circular as a separate problem.

As regards advanced primary education, the Government consider that it is not feasible to lay down as an ultimate aim that a certain proportion of the boys of school going age

should go through the course or that provision should be made for a fixed proportion of such boys. 'The development of these schools must depend primarily on the effective demand for them, subject to the proviso that education of this nature should be made as accessible as possible in all parts of the district.' Local bodies should endeavour to work up to the provision of one Upper Primary School for every 25 square miles of area, and one Middle Vernacular School for every 125 square miles. This is the standard laid down for adoption in the United Provinces, and if it were conformed to, the mean maximum distance which any boy would have to walk to attend upper primary classes would be three miles, 'a distance' say the Government, 'which should not be beyond the powers of boys who are old enough to attend such schools.' At the same time it is essential that the existing distribution of these schools even in districts which already have them in excess of the suggested scale, should be carefully scrutinised to ensure that they are located at the points where they are most needed and that no portion of the district is unduly neglected. ~~Another~~ Another point to which attention is specially invited is the improvement of upper primary schools. This should be effected (1) by establishing a certain number of Board Upper Primary Schools, the proportion suggested being one to each thana, (2) by providing, or insisting as a condition of grant-in-aid on the provision of, not less than three teachers in each school, so that no teacher has to take more than thirty boys or two classes at a time.

The problem of lower primary education is more pressing, and it is this course which, if primary education became universal, all boys will be taught. The first point therefore to be settled is, how many boys each local body should aspire to draw into its schools. The lower primary course may be taken to cover a period of four years, and the boys undergoing this course may be considered to be between the ages of 7 and 11. The proportion of such boys to the total male population is approximately ten per cent. On this basis it is

calculated that the proportion of school-going population at school varies from 17 per. cent. in the most backward areas to 76 per. cent. in the most advanced. And the ideal to be worked up to by each local body as its immediate aim is to be 'the attainment in district with a percentage under 25 of a percentage of 50, the doubling of the percentage in districts with figures between 25 and 40, and a percentage of 75 or 80 in the remaining districts.'

So much for the ideal. But what is the actual condition of elementary education in the province? In 1914-15 there were approximately 440,000 boys reading in the infant class, 140,000 boys in the lower primary classes and 20,000 in the upper primary classes. It follows from these figures that one-half of the boys in primary schools never rise above the infant classes and fail to derive any lasting benefit from their attendance at school. This lamentable result may be due to one of two causes; either many boys, though staying long enough at school to complete the lower primary course, fail to do so mainly owing to inefficient teaching, or many boys are taken away before they have been four years at school. The Local Government are disposed to think that it is due very largely to inefficient teaching and propose that hereafter local bodies should see to it that no teacher takes more than thirty boys or two classes at a time, and that as soon as possible all lower primary schools are provided with a second teacher.

The next subject considered is the distribution of schools. Local bodies should in consultation with sub-inspectors of schools ascertain where new schools are urgently needed. It might also be that in some tracts one of two competing schools might with advantage be closed and the teacher transferred to some other place where there is a greater demand for his services. Care, however, should be taken to avoid the removal of any school which serves a useful purpose. The Government have, after consulting the non-official members of the Legislative Council and other gentlemen interested in education, arrived at the conclusion

that boys attending the infant, lower primary and upper primary classes might be expected to walk a maximum of one, two and three miles respectively; in other words, the maximum areas served by infant, lower primary and upper primary schools should be about 23, 10, and 25 square miles. This should be kept in mind in the choice of places for the location of new schools.

With a view to enable local bodies to give effect to the above recommendations, the Government, evidently as an experimental measure, have provided that in Sambalpur 'the District Council shall entrust the supervision of education within its jurisdiction to a School Board consisting of the Deputy Inspector and certain of its own members who take special interest in education, and, if the council thinks fit, of other persons likely to give useful advice and assistance in the management of schools.' The following are the rules governing the relationships between the District Council and the School Board and the School Committees appointed by the School Board :—

i. The School Board shall, subject to the general control of the District Council, conduct the management of District Council Schools.

ii. The Secretary to the School Board shall be appointed by the District Council.

iii. The names of the proposed members of the School Board and of the Secretary to the Board shall be submitted for approval to the Deputy Commissioner who may veto any appointment to a School Board. The number of members should not ordinarily exceed seven, any four of whom may constitute a quorum.

iv. All questions relating to the appointment, promotion, transfer, leave, reduction, suspension and dismissal of masters shall be, in the first instance, decided by the School Board.

v. The proceedings of the School Board shall be laid before the next meeting of the District Council, and it shall

be open to any members present at the meeting to raise a question as to any action taken by the School Board and set forth in the proceedings. If no such question is raised, the action taken by the School Board shall be deemed to have been ratified by the District Council.

The School Board shall, subject to the control of the District Council, appoint for each District Council School, a School Committee consisting of not less than five residents within the area for which the school has been established, of whom not less than three members shall form a quorum. Members of the School Committee may hold office during the pleasure of the School Board, provided that the Deputy Commissioner may veto any appointment to a School Committee or the removal of any member therefrom.

vi. The School Committee shall visit the school collectively once a month at least, and a record of their proceedings shall be made in a book kept for the purpose. One of the members shall visit the school at least once a week.

vii The School Committee shall take all possible measures to secure regularity of attendance, settle matters of discipline and arrange in accordance with the rules for the time being in force what rates of fee scholars shall pay and what boys shall be free scholars. They shall also bring irregularities connected with the management of the school, the want of suitable accommodation or furniture, and the necessity for repairing the school building, etc., to the notice of the School Board.

viii. A copy of the report of the School Committee on the above matters shall be forwarded by the headmaster of the school to the Deputy Inspector.

ix. The services of the village watchman may be used in escorting school children whose parents object to send them unattended to another village or who neglect to attend school though their parents desire them to do so.

x. The School Committee may grant a teacher casual leave not exceeding three days. Such leave, if taken, shall be reported by the headmaster of the school to the Deputy

Inspector. The Deputy Inspector may grant a teacher casual leave for ten days in any calendar year subject to the confirmation of the District Council.

Provided that the aggregate amount of casual leave admissible to any officer shall in no case exceed ten days in any calendar year.

“In conclusion,” say the Government, “we are to impress upon you (local bodies) the urgency of the whole subject of primary education and the importance which it has for every District Officer. For in whatever direction he may turn to forward the moral and material progress of the cultivator, whether he would encourage him to resist the oppression of the Zemindars or of corrupt subordinate employees of Government, whether he would cause him to understand the record-of-rights, whether he would bring him into Co-operative Societies, whether he would induce him to try new needs, implements or improved agricultural methods or to protect his cattle against disease, or his family against malaria and plague, at every step he is confronted with the same difficulty, the ignorance and illiteracy of the masses which make them suspicious of every change and an easy prey to every oppressor and impostor. Till the elements of education are not merely placed within the reach of all but are actually given to the greater portion of the population, advance in the many directions in which the Government are trying to achieve will be slow and uncertain.”

Primary Education in Bihar and Orissa.

[BY THE HON'BLE RAI BAHADUR PURNENDRA NARAYAN
SINHA BIDYABIBHUSHAN, M.A., B.L.]

THE area of British Territory in the Province of Bihar and Orissa is 83,233 square miles and the population 34,490,084.

The total number of Middle Vernacular, Upper Primary and Lower Primary Schools was 21,459 in 1914-15. But the number fell down to 21,351 in 1915-16. The number of

pupils fell from 612,084 to 602,734. The expenditure, however, rose from Rs. 23,98,825 to Rs. 24,84,045. There is thus a total loss of 106 schools and 9,350 pupils.

The Director of Public Instruction suggests the following reasons for this unexpected and disappointing fall:—

(1) Teachers of Primary Schools are now trained in Government Training Schools; when trained they demand higher pay. So, unless there are more funds, the number of teachers has to be reduced.

(2) The concentration of schools, according to a recent circular of the Local Government. I shall refer to this circular later on.

(3) The withdrawal of girls from boys' schools.

(4) Failure of crops and damages caused by flood in some parts of Bihar and loss of work by Oriya workmen in Bengal Factories owing to trade disturbances in connection with the war have hit the agriculturists and workmen hard in many parts so that they cannot afford to pay the fees of their boys, or it may be they require their labour. There have been outbreaks of small-pox, malaria and cholera in some parts and they may be also partly responsible for the decrease.

(5) The increase of expenditure on Middle English and Middle Vernacular Schools at the expense of Upper Primary and Lower Primary Schools. The fall in the number of schools and boys in the Lower Primary Schools has caused much concern to the Local Government. In their recent resolution on the subject, the Government say:

“The Director suggests a number of causes as contributing to this decline, *viz.*, the rise in the minimum pay of teachers, the increased expenditure on Middle and Vernacular Schools, the excessive concentration of schools, unfavourable agricultural conditions, and a decrease in the number of girls reading in boys' schools. The reasons assigned are not very convincing; while it is true that the rise in the minimum pay of teachers and steady increase in the number of trained teachers must ultimately prove a tax on the

resources of many local bodies, this factor can hardly have had any effect on the number of pupils in 1915-16; for the total number of teachers in schools maintained or aided by local bodies rose by 553. Further, some local bodies, such as Puri and Palamau District Boards, appear again to have failed to spend up to the minimum standard laid down. The increase of expenditure on Middle English and Vernacular Schools is very small compared with the total expenditure on primary education. While scarcity in Singhbhum may explain the falling off in that district, the floods in Darbhanga can hardly account for the decline which took place there when Muzaffarpur, which suffered equally from floods, showed a substantial increase. In the three coast districts of Orissa alone has there been any attempt to concentrate schools; and here in strong contrast to the rest of the province, where no such relation can be traced, the decline in the number of pupils is to some extent proportionate to the decline in the number of schools, the fall being at the rate of twelve to nineteen pupils for each school abolished; yet in none of these districts is there less than one school, on an average, to every one that a half square miles of area, so that the number of schools is still by no means insufficient.

“The Lieutenant-Governor in Council, therefore, looks elsewhere for the root cause of the decrease, and is inclined to doubt whether it represents any real decline in the amount of effective education given. It is a remarkable fact that for every pupil less in lower primary classes at the end of 1915-16, there were eight pupils less in the infant classes. It may be inferred that the decline is due to some defect in the present system of primary education. In the resolution on the report for 1913-14 attention was drawn to the extraordinary difference between the number of boys at school and the number of persons returned as literate at the census which shows how large a proportion of the pupils fail to acquire a permanent knowledge of reading and writing. Of the pupils now in primary schools maintained or aided by local bodies, 50 per cent. are in the lowest infant class and 70 per cent. in the two infant classes combined, there being only 25 per cent. in the lower primary stages and 5 per cent. in the upper primary. These figures suggest that about half the boys who attend school go no further than the infant classes and therefore receive no real education. Until this state of affairs is remedied, many parents will

naturally regard schools not as a source of education but as a crèche; and any slight inconvenience or financial enhancement will cause them at once to remove their children from schools, at which they derive no apparent benefit. In such circumstances fluctuations must occur from year to year, and steady progress cannot be maintained, nor will an effective demand for education be created, till schools attain a higher standard of efficiency."

The circular addressed to the District Boards to which I have also addressed before is a lengthy document, from which the following is an extract.—

"In paragraph 10 (c) of their Report the Committee on primary Education stated that 'the education required for the children of cultivators and of other people of similar occupations is of an extremely simple kind, and the committee considered that the lower primary course, if properly taught, would fully meet their needs.' His Honor in Council accepts this view, at any rate so far as to say that the lower primary course gives the bare minimum of education required by the above classes. The problem of primary education thus resolves itself into two distinct parts, that of the higher standard of education given in upper primary and middle vernacular schools, and that of the lower standard, provided by lower primary or infant schools; and it is desirable to treat these as separate problems.

"In the case of what may be styled advanced primary education, it is not feasible to lay down as an ultimate aim that a certain proportion of the boys of school-going age should go through the course, or that provision should be made for a fixed proportion of such boys. The development of these schools must depend primarily on the effective demand for them, subject to the proviso that education of this nature should be made as accessible as possible in all parts of the district. As a rough standard for the number of schools required, it is suggested that in the districts of Bihar proper and the sea—coast districts of Orissa, local bodies should endeavour to work up to the provision of one upper primary school for every 25 square miles of area and one middle vernacular school for every 125 square miles; such a proportion, however, is out of the question in Sambalpur, Angul, the Santhal Parganas and Chota Nagpur, except possibly in parts

of Manbhum. If effect were given to this suggestion, which conforms to the standard laid down in the United Provinces, the mean maximum distance which any boy would have to walk to attend upper primary classes would be three miles, a distance which should not be beyond the powers of boys who are old enough to attend such schools. At the same time it is essential that the existing distribution of these schools, even in districts which already have them in excess of the suggested scale, should be carefully scrutinized to ensure that they are located at the points where they are most needed and that no portion of the district is unduly neglected. Another point to which attention is specially invited is the improvement of upper primary schools. This should be effected (1) by establishing a certain number of Board upper primary schools, the proportion suggested being one to every thana, (2) by providing or insisting as a condition of a grant-in-aid on the provision of not less than three teachers in each school, so that no teacher has to take more than thirty boys or two classes at a time. The latter condition may, however, be modified by what is said below regarding the possibility of one teacher taking more than thirty boys or two classes by arranging for him to take different classes at different hours.

“The problem of lower primary education stands on a different footing. If the conclusion of the Primary Education Committee quoted above is accepted, it is this course which, if primary education becomes universal, all boys will be taught; and it is the number of boys now reading this course which the Government of India wish to see doubled in near future. The first point that arises, therefore, is to settle the number of boys whom each local body should aspire to draw into its schools. If the teaching in lower primary schools attained a proper standard of efficiency, all boys attending them would complete the lower primary course within four years, so that all the boys who are of an age to attend lower primary schools may be held to be comprised within a four-year age group, which might be taken as between the ages of 7 and 11. The proportion of these boys to the total male population is approximately 10 per cent.”

The Government Resolution goes on to consider the question of stagnation in infant classes and the causes thereof:—

“In 1914-15, there were approximately 440,000 boys reading in the infant classes, 140,000 in the lower primary classes and

20,000 in the upper primary classes. It follows from these highly significant figures that one-half of the boys in primary schools never rise above the infant classes and fail to derive any lasting benefit from their attendance at school. This conclusion is confirmed by the figures of the last census when at the ages 15 to 20 only 59 persons per mile were returned as able to read and write, as compared with 186 per mile aged 10 to 15 who were at school. This lamentable result must be due to one of two causes ; either many boys though staying long enough at school to complete the lower primary course, fail to do so mainly owing to inefficient teaching, or many boys are taken away before they have been four years at school. If the latter cause was the main one, it might be due either to inefficiency of teaching, which causes the parents to consider it not worth while leaving their children any longer at school, or to the fact that the children of cultivators become at an early age too useful to their parents to be allowed to remain at school for the required period. The Local Government are disposed to believe that inefficient teaching is the main factor. An ordinary lower primary school frequently has four classes and only one teacher, who is often imperfectly educated. In such cases it is clear that all the classes cannot be adequately taught, and the tendency will be to pay attention mainly to the more promising boys or those of the better class."

The remedy was suggested by the Committee on Primary Education to the effect that no teacher should take more than 30 boys or two classes at a time. The Government is of opinion that this principle should be strictly enforced in future so far as possible. The Government then lays stress on the location of the existing schools. "The location of the existing schools should be carefully examined to see whether they are placed at the points where they are most required and that no portion of the district is unduly neglected. This can best be done by a careful scrutiny of the Thana maps and lists of schools referred to above, but allowance must be made for physical obstacles, such as streams or jungles, which may make a school situated in one village inaccessible from another village, although the actual distance is small". The Government is further of opinion that boys attending infant, lower

primary and upper primary classes, might be expected to work a maximum of one, two and three miles respectively to schools; in other words, the maximum areas served by infants, lower primary and upper primary schools should be about $2\frac{1}{2}$, 10 and 25 square miles. As matters stand at present, there is one lower primary school to every $4\frac{1}{2}$ square miles of area in the Province. In the opinion of Government therefore the real need is for more teachers rather than for more schools, but the question is one that must be settled for each district by itself on a careful review of its special conditions. We have yet to see how far the Government policy is carried into effect and what its practical result will be.

A Popular Type of Housing Society.

[BY RAO BAHADUR S. S. TALMAKI, B.A., LL.B.]

II

The word "Co-partnership" was originally used to indicate a system whereby owners of capitalistic industries, with a view to give their employees an interest in their concern, made them sharers in its profits in proportion to the value of labour contributed by them, such profits or a larger portion thereof being credited to the workers by way of shares in the capital of the concern, thereby virtually making them partners therein. In other words, under such a scheme capital and labour are made "Co-partners." It is therefore known as "Labour Co-partnership," as distinguished from the system at present under consideration which is known as "Tenant Co-partnership." For here the tenants are in a sense made co-partners or joint owners of the house-owning interest. Virtually, however, the tenants become their own landlords, for they themselves manage the whole property, the capital invested being paid no share in the profits beyond a reasonable rate of interest or dividend. In the Labour Co-partnership system, however, capital receives a share in the profits of the concern over and above the interest paid, and the concern itself is mainly managed by the owners of capital

themselves, labour being represented in the management not in proportion to its value but in that of its shareholding interest. The difference in the two systems is largely due to the fact that the initial risk in the one is taken by the capital while in the other it is taken by the tenants themselves, Whatever may be the reason, the latter system has a greater advantage on its side both in point of management and in that of distribution of profits. There is therefore real co-operation in this system more than in the case of labour Co-partnership, and it bears a close resemblance to Co-operative Stores in many respects as will be shown hereafter.

The first Society of this type was started in England in the year 1888 under the name of Tenants Co-operators, Limited, the late Mr. Vansittart Neale being one of its principal founders. But it did not attract much public attention till the year 1901 when a second Society known by the name of Ealings Tenants Limited, was started under the inspiration of Mr. Henry Vivian. It was registered under the Industrial and Provident Societies Act, corresponding to our Co-operative Societies Act. It is located in a suburb of London where land is cheap and light and air can be had in plenty. Its operations are confined to a limited area so that all the tenants of the Society might be neighbours, might know one another and might act together. Owing to the large success it has attained and the impetus it has given to similar other Societies being started, the Ealing Tenants are fitly described as the pioneers of the Co-partnership movement, and the estate developed by them is known as the Pioneer Garden Suburb.

The capital of this Society is raised by shares of £10 each on which not more than 5 per cent. dividend is payable and by loanstock at $4\frac{1}{2}$ per cent. Deposits are also received but on a small scale, for capital under this head will be of no use to a Society of this type unless it be of a long term. Tenants are to hold shares of a substantial value sufficient to

create a stake in the property they occupy. Each tenant has to hold 2 fully paid-up shares of £10 to begin with, and thereafter take up additional shares, one by one, the amount whereon is payable by instalments of 5s. per month, until his collective share holding amounts to 5. Thereafter he ceases to pay anything; but further stake in the property is created out of his share in the profits and the dividend earned by him. The division of the profits is made in the following manner. After paying all the expenses and charges, and setting apart a portion for the Sinking Fund representing $\frac{1}{2}$ per cent. per annum on the total cost of the Society's buildings, and paying dividend on share capital and interest on loanstock, another portion is set apart for the Reserve to an extent as may be found expedient; the profits remaining thereafter are divided among the tenants in proportion to the amount of rent paid by them, much in the same manner as in a Co-operative Store where the members receive bonus on their purchases. The profits earned by a tenant are not, however, paid out to him, but are allowed to accumulate first to the credit of his repairs fund until it amounts to a sum equal to half the annual rental, and then to his share or loanstock account until his collective holding is equal to the value of the dwelling occupied by him. Thereafter, the tenant is at liberty either to receive his share of profits in cash together with the interest and dividend he may have earned, or to allow them to accumulate in shares or loanstock by way of additional investment. Thus, the tenant's stake in the Society's property is automatically increased without any extra payments out of pocket, beyond the initial sums paid. A sense of ownership is cultivated arising out of the possession of stock in the concern and the participation in the profits. External repairs are a charge on the Society but internal repairs are done at the expense of the tenant to the satisfaction of the Committee. This procedure is found to ensure an efficient upkeep of the property. When a tenant leaves the estate, repairs, if beyond the ordinary wear and tear, are made good from the dividend to his credit, and the remainder is paid to the outgoing person, who would then be

free to transfer his interest in the capital. He is also at liberty to allow it to remain in the Society as long as he chooses, receiving only the dividend thereon.

The houses are not built by the members individually, nor are they scattered here and there as in a Building Society. The Society itself builds all the houses on a well-conceived plan limiting their number to an acre. Nor are they separately owned by the occupiers. The ownership is on joint partnership basis. Hence the name "Co-partnership" given to the Society. While no occupier can say any of the houses as his, yet everyone of them can say they all are their houses. It is not a disjointed mass of individual ownership interest; it is a communal whole. The houses are well built and designed on sanitary lines, each having a garden both in the front and rear. While tenure is undisturbed so long the amenities of neighbourliness are maintained, the tenant is able in case of removal from the district to transfer his interest without loss or inconvenience incident to the houses built on the Building Society principle.

The Society at Ealing was started by a few members only. At first land was purchased for the erection of 9 houses. It cost £400. Later additions were made and by 1904 the Society had property valued at £25,000. Then came a great development in the idea and at the instance of Mr. Vivian, the Managing Committee of the Society agreed to adopt what he called the "long view," signifying the development of the estate in such a manner as to provide for the pastimes, pleasures and all the amenities of recreation and instruction within easy reach of the tenants. The Committee increased year by year the acreage of their lands until now the Society has an estate worth £218,280 with an acreage of 60½. Besides the gardens contiguous to the houses, additional gardens aggregating 5 acres in extent are allocated for tenancy of those who wish to go in for market-gardening on a domestic scale, and about 12 acres of land have been set

apart for outdoor games. Moreover, a Club and Institute is located in the midst of the estate so as to be accessible from every part. Here is a fine hall for public meetings and entertainments, and provision is made for a well-fitted library and indoor games and amusements in the rooms of the Club and Institute. In fact, every thing is devised and executed with a view to add to the comfort, recreation, and instruction of the tenants, which on the individualistic system of building houses they would not have been able at all to command.

So much from the point of view of the tenants; let us now look at the scheme from that of the financier. To the investor the Society has regularly paid interest at 5 per cent. on share capital and 4 to $4\frac{1}{2}$ per cent. on loanstock. To the tenants it has let the houses and gardens at fair rentals and has allocated in addition a bonus on rents paid which now amounts to 10 per cent. From a commercial point of view the concern cannot but be considered a source of sound investment. The tenants' right to share in the profits creates a strong inducement to protect the Society's property reducing to a minimum the expenses on repairs. Since the tenant is also an investor in the Society, his invested capital is a guarantee of his good faith. There are therefore no arrears of rent. Vacancies are very rare, both because demand for residence in such estates is ever on the increase, and because it is to the interest of the tenants to bring new occupiers in place of outgoing persons. There is one corporate body controlling each estate, and there is no probability of the locality depreciating through individual carelessness. The compulsory Sinking Fund is an additional guarantee that the property on these estates will never become out of date, for at any period the Society can attend to necessary improvements on its property without increasing capital expenditure, thereby maintaining the soundness of the Society's status.

The Ealing Society has proved to be the fore-runner of a large number of similar Societies in other parts of England, some of which bid fair to exceed the pioneer in size. At

Hampstead 4 Societies have been started which now possess an aggregate acreage of 145 and property worth over £380,000. They have brought together in one community various classes and orders of men. Other places have quickly followed suit, thereby proving the high value of the Co-partnership principle and providing healthy conditions for people in various walks of life and in a variety of employments. Even large employers of labour are setting an example of high public spirit and a recognition of their duty by securing through co-partnership the best housing conditions for their employees.

The movement may be said to have received a wider public recognition since 1905, for in that year was formed a central organising body under the name of Co-partnership Housing Council with the object of promoting the formation of such Societies and to assist them with advice and guidance. Two years later the movement received a greater impetus by the establishment of a Business Federation known as Co-partnership Tenants Limited. It is a central body for concentrating experience and for acting as a unifying and protective power. It is composed of :—

1. A Financing Department for assisting the Federated Societies with funds.
2. An Accountancy Department which provides for professional audit of the accounts of the Societies and uniformity in account-keeping.
3. A Trading Department which secures economies in pooling orders ensuring the benefits of wholesale purchase of building materials.
4. An Architects and Surveyors Department which gives expert advice on land, estate development and building of houses, ensuring the most economic and approved methods.
5. A Welfare Department which advises on all matters concerning Educational and Social Welfare.

6. A Publishing Department which does the Propagandic Work.

In fact, the Central Society by its unifying and guiding force aims at meeting the varied requirements of the existing Societies, and by its fostering care at supplying an impetus to new ones. Its capital is raised by shares of £10 each on which it has uniformly paid dividend at 5 per cent. and a loanstock bearing interest at $4\frac{1}{2}$ per cent. Its total capital has now risen to £250,000. Fourteen Societies have already joined the federation, and besides the houses already built by them in their respective estates, they are still continuing their building operations, which when completed will nearly total the value of the estates to £3,450,000 with 9,125 buildings, housing about 50,000 people on 900 acres of land. If to these are added the figures of other Societies working on the same principle but which are at present outside the federation, the results for a movement which has scarcely completed 12 years of existence would appear to be striking indeed !

The housing activities on the co-partnership lines in England are not confined to urban areas alone. The principle is found to be capable of successful application for the solution of the rural housing problem as well. The Rural Co-partnership Housing Council started recently in that country has promoted the formation of several such Societies in rural areas. In fact, the co-partnership principle has proved its value and efficacy in solving the housing problem in all conditions of life and there is no reason why it should be less efficacious in the solution of the same problem under the conditions of life prevailing in India.

Thus the usury of rent is being remedied by making tenants their own landlords, just as the usury of goods is by making the purchasers their own vendors and the usury of money by making debtors their own creditors. And it is in this combination of antagonistic interests lies the pith of the whole co-operative philosophy. It would be interesting

to note how the two co-operative movements started in England, one with the object of mitigating the usury of goods and the other the usury of rent have run all along on parallel lines. What the Rochdale weavers were to the one, so were the Ealing labourers to the other, both being the pioneers of the respective movements. The Societies of the former type under the name of Co-operative Stores were started by the consumers among the poorer class of people for overcoming the avarice of the middlemen by themselves undertaking the collective purchase and retail sale of the necessities of everyday life. As the movement gained ground by the formation of similar stores at other places, they further strengthened their position by federating the different Societies under the wings of the Co-operative Wholesale Stores, whose transactions on a gigantic scale are too well known to need repetition. The co-partnership housing movement on the other hand has followed exactly the same line. It was started by the poorer class of tenants for overcoming the avarice of the capitalistic landlord and the slum-owner by effecting collective building operations on the joint ownership principle. These Societies, too, after a time federated themselves under a Central Organization, the Co-partnership Tenants Limited. Both kinds of Societies pay a limited rate of dividend or interest on capital, and after setting aside a portion of the profits for the reserve, distribute the balance thereof, in the one case, among the consumers in proportion to the value of their purchases, and in the other among the tenants in proportion to the rents paid by them. The third branch of the Co-operative movement dealing with credit has also run on similar lines, except perhaps with a slight variation as to the mode of distribution of profits. All the three branches of co-operation have the same common object in view, *viz.*, the amelioration of the condition of the poorer class of people through their own organised efforts under the wholesome influence of self and mutual help in order to save themselves from the consequences of what M. Luzzatti described as, the threefold usury of goods, money and rent.

If such be the potentialities of co-operation as proved by European experience, surely it is worth while giving it a trial in our own country. One of its varieties, *viz.*, Co-operative Credit, though only recently planted on our soil, has already taken deep root and promises soon to yield ample fruit. And there is no reason why another variety, *viz.*, Co-operative Tenancy, should not prove to be equally successful in this country for mitigating a corresponding evil. And nowhere in India does the measure stand more favourable a chance of success than in Bombay where the housing problem is in need of a speedy and efficacious solution by reason of its increasing acuteness brought about by the growth of population and the rapid expansion of industrial and commercial interests of the place. The present is an opportune time for Co-operative Housing Societies to start their operations. Government and public bodies are astir with a consciousness of the gravity of the situation. The Committee appointed by Government have made important suggestions for the development of our town. The Improvement Trust has been spending vast sums of money in opening up a large building area in the north-eastern part of the Island. The whole area is being so developed as to form an ideal Garden City, with wide roads, with numerous open spaces, common gardens and recreation grounds. Facilities for speedy communication by train and tram are also being made available. On the other hand, the Town Planning Act has recognized the development of land on rational grounds, and Salsette to which it is made applicable in the first instance promises to become an important suburb of Bombay. Let us therefore make the best of so valuable an opportunity. If we let it slip from our hands, capitalists are sure to step in rendering it almost impossible for tenants to take up the housing work on their own behalf, at least on any large scale. I have already referred to the success which co-operative credit has attained in our country though of very recent introduction. If poor illiterate agriculturists in far off villages can start Co-operative Societies in large number and work them successfully too, there is reason for hope that

people living in such an advanced city like Bombay and claiming some share of education and enlightenment should be in a better position to co-operate for the solution of one of the greatest problems they are called upon to face. The new Co-operative Societies Act of 1912 has made it possible to register Co-operative Housing Societies under its provisions and the several facilities which the enactment affords must prove to be of great initial advantage to them. No doubt capital might be found to be rather a hard problem to solve at the commencement of the movement. For a Credit Society can start work with any small capital while a Housing Society will require it on a pretty larger scale and at a far cheaper rate of interest too. But I feel sure that if we show our earnestness to help ourselves we might expect reasonable assistance from Government and other public bodies, and in course of time even from the investing public if they once discover that such Societies offer a safe and reliable source of investment. But the initiative must after all rest with us. I therefore earnestly appeal to my fellow tenants, whatever class or creed they may belong to, to join together in forming as many Co-operative Housing Societies as they possibly can on the lines suggested by me, in order to put an end to the numerous grievances they are subjected to under the present housing conditions. And once they co-operate for so important an object like this, they will find wider possibilities dawning upon them leading to the amelioration of their social and economic condition in the various walks of life.

Anchylostomiasis.

(Synonyms: Hookworm Disease, Uncinariasis, Dochmius, Anæmia of Ceylon, &c.)

[By DR. JOHN E. SNODGRASS, DIRECTOR, ANCHYLOSTOMIASIS
CAMPAIGN, CEYLON.]

HOOKWORM disease has in all probability existed for centuries past. The first cases described, that seem more or less authentic, date back to the first half of the seventeenth century, when Piso, in Brazil, reported a group of symptoms which, in the light of present knowledge,

were presumably due to hookworm infection, though the worm itself was not demonstrated. It is only within recent years that the group of symptoms incidental to the disease have been ascribed to the presence of hookworms in the intestinal canal.

Two distinct varieties of the worms are recognized, viz., the *Anchylostomum duodenale*, or old world form; and the *Necator Americanus*, or new world species. Both varieties are found in Ceylon. The worms are, roughly, $\frac{1}{3}$ to $\frac{3}{4}$ of an inch in length, and are whitish or yellowish in colour.

The female worm lays her eggs in the intestinal canal of the host, after which they are passed in the excrement, and, unfortunately, are too often deposited on the ground, where, providing favourable conditions, such as warmth, moisture, and shade prevail, they hatch in from 8 to 24 hours; after a period of 2 to 5 days the young worm reaches the infective stage and is ready to enter the body, which it does through the skin or mouth, in the latter instance usually through the medium of food or drink. In the great majority of cases it enters through the skin, and most frequently through the feet and ankles, as these parts are ordinarily more exposed to a ground infection. Many embryos may enter through healthy skin at one time. In case entrance to the body is gained in this manner, they enter the blood vessels and are carried to the heart, thence to the lungs, where they find their way into the bronchial tubes, are coughed up, and very often swallowed. They then pass through the stomach into the intestinal canal, where they attach themselves to the small intestines by drawing a portion of the lining into the mouth, and at the same time provide a source of nourishment as they feed on blood drawn from the intestinal walls. In case the infection takes place through the mouth, the young worms pass directly into the intestinal canal. During this, the infective stage, they are not visible to the eye without the aid of the microscope.

The worms reach the adult stage, and the females begin to lay eggs, in from 6 to 8 weeks after the infection has taken place. Each female worm is capable of laying 2,000 or more eggs per day, and as more than 5,000 worms have been recovered after treatment from a single person, it is apparent that the number of eggs passed daily in the fæces of a heavily infected person is very large. Assuming, for example, that only 10 per cent. of these eggs hatch, it is evident that a person with even a mild degree of infection is a distinct menace to the health of the public, and may spread the disease. The life of the hookworm in the body is, according to prominent authorities, about 8 to 10 years; hence, in case no re-infection occurs, it is possible to recover from an infection without treatment; this is, however, inadvisable, as permanent bodily injury may result before the worms die.

SYMPTOMS.—Dock and Bass, in their book on hookworm disease, describe the classes of cases very clearly under three headings, which they quote from the writings of Ashford and King, viz., “slight,” “moderate,” and “marked cases.” This classification is followed below, and the symptoms enumerated are in part those of the above-named writers.

SLIGHT CASES.—It must be remembered that a fairly large percentage of this class of cases present neither subjective nor objective symptoms, but are, nevertheless, a menace to the health of the public, on account of the fact that they pass hookworm eggs with the bowel movements, and are thus instrumental in spreading the disease, unless the excrement is properly conserved.

One of the first symptoms noted is the familiar “ground itch,” which is found at the onset of many infection; this troublesome affliction is caused by the embryos (young worms) passing through the skin. The “itch” is caused partly by the irritation of the worms boring their way through the skin, and they may also deposit an irritant substance in the skin at the same time. So when you see a person suffering from

true ground itch, you may be sure that person will, in about 6 weeks, show the presence of hookworm eggs in the excreta. This class of case, as a rule, presents slight paleness, the amount of perspiration is less than normal, and occasional palpitation of the heart is experienced. The appetite is variable, attacks of uneasiness or pain in the stomach often occur, gas in the stomach and abdomen is frequently troublesome. There is a tendency to breathlessness on slight exertion, the mental faculties are dulled, dizziness, headache, and a disinclination to work are experienced. The amount of hæmoglobin (red colouring matter of the blood) is normally about 90 per cent.; in this class of cases it will average something like 60 per cent., which shows that the hookworms have extracted a considerable amount of blood from the body. As already stated, this is the way they obtain their nourishment; the extraction of the red corpuscles from the blood causes the familiar anæmia or paleness of hookworm disease, and leads to numerous distressing symptoms as well.

MODERATE CASES.—This is the class of cases that predominate in Ceylon, as elsewhere. Here all of the symptoms above noted are exaggerated. Pallor is more marked, sweating is rare, nausea and vomiting are often experienced, and the tongue is seen to be coated and is often large and flabby. Breathlessness and palpitation of the heart are more marked, the patient becoming exhausted on slight exertion. Pain in the chest with a feeling of weakness in the knees and legs is often troublesome. There is a tendency to frequent headaches, dizziness, and noises or ringing in the ears, and the patient becomes quite stupid. Joint pains are so common that a diagnosis of rheumatism is often made. In this stage the percentage of hæmoglobin ranges from 30 to 60 per cent.

MARKED CASES.—When this stage is reached, the patient may at any time succumb to the disease. Pallor is extreme, the appetite may be nil or ravenous, nausea and vomiting frequently occur, diarrhœa is often present. There is distressing shortness of breath on exertion, dropsy or œdema

of the feet, ankles, and frequently of the legs, body, and abdomen is seen. Every one is familiar with the so-called "dirt eaters." This distressing affliction is another manifestation of hookworm disease, and may be seen even in the earlier stages; there is a strong desire to eat earth, ashes, hair, lime, chalk, feathers, and other indigestible substances. If you know a person who is addicted to this habit, you may be pretty sure that hookworm disease is the cause of it. In this stage many of the large unsightly ulcers so often seen in Ceylon are found; they are usually associated with a marked degree of debility and anæmia, and are very difficult to cure. After the patient has been cured of this disease, many of them will, as the patient becomes stronger, disappear without further treatment. Dizziness and ringing in the ears are very common, the intellect is dulled, mental processes are slow, and the patient is very stupid, the facial expression is melancholic and anxious. The patient is extremely weak, and irregular fever may be noted with, at times, a subnormal temperature. The percentage of hæmoglobin is often found to range from 5 to 30 per cent. When the above picture is presented, the patient is almost surely going to die, unless prompt and efficient treatment is instituted; even with the best care and treatment a certain percentage of these cases cannot be cured, but will succumb. Death under these conditions should not be attributed to the treatment, as it was, in the absence of treatment, certain.

No person is immune to hookworm disease; the reason that one race or nationality is more heavily infected than another is that it is, by reason of habit or environment, more exposed to infection. Persons living in cold climates are not immune to the ravages of the disease, but rarely contract it on account of the fact that, as the eggs hatch in the earth in the presence of warmth and moisture, it is essentially a disease of warm climates. What is known as the "hookworm belt" encircles the globe between 36 degrees north and 30 degrees south of the Equator. The assertion is made that more

persons are afflicted with hookworm disease than with any other disease, and this seems plausible, when it is realized that something like 700,000,000 persons are sufferers from hookworm infection. The outlook for tropical countries in this connection would be dismal, indeed, were it not for the fact that Science has revealed the secrets of the disease, and that as a result it is quite readily and easily cured.

The degree of infection among the villagers examined to date is 93 to 95 per cent, while the estate labourers present an infection of 96 to 99 per cent. In view of what has already been said, it is very evident that the disease presents one of the greatest and most important economic problems that confronts Ceylon to-day, for, with 90 per cent. of the total population more or less afflicted by this disease alone, it is not reasonable to expect the normal amount of mental or physical effort from the people as a whole or from those even moderately infected, especially in view of the fact that one of the most prominent manifestations of the disease is a dulling of the mental faculties. Given a child infected early in life, his school teacher looks on him as lazy or stupid; after he leaves school and tries to make his own way in life, the same estimate of his capabilities follows him, with the result that he is never able to exercise to the maximum his latent power, as he would have done were he not at the outset handicapped by disease.

Up until the present time more than 3,500 persons have been cured of the disease in connection with the campaign at Matale. The wonderful improvement in the physical condition of many of those cured is sufficient evidence of the efficacy of the treatment. Many who would have without treatment died within a comparatively short time have been treated and cured, and have recovered their health and strength, and are again able to assume the duties of citizenship. The Superintendent of one of the estates included in the area at present being treated states that the turn-out of labour on the estate has increased from about 60 per cent. to 78 per

cent. since the treatment was begun about four months ago. Surely this is conclusive evidence of the results of treatment. Many people living at a distance recognize the benefits to be secured by treatment, and have walked from Anuradhapura, Kadugannawa, near Nuwara Eliya, and other distant points in order to secure treatment.

PREVENTIVE MEASURES.—The installation and *use* of proper latrines is the most essential measure in the eradication of the disease from Ceylon. The eggs of the worm will not hatch within the human host, but require to be deposited on moist, warm earth; climatic conditions in Ceylon and the habit of depositing the excreta on the ground are, therefore, most favourable to the spread of the disease. If all excrement is deposited in suitable latrines, the eggs will either not hatch or if they do, the young worms will be unable to find their way to the surface of the ground, in case the pit type of latrine is utilized. After the hookworm embryo has reached the infective stage, 2 to 5 days after hatching, it will, under favourable conditions, remain quiescent for 6 to 10 months, unless it has an opportunity to come in contact with the skin of a human victim, when it very quickly makes its way into the body. It does not require that a break in the skin be present, for it can and does penetrate the normal healthy skin in the great majority of instances. It is apparent, therefore, that the greatest factor in the prevention of the disease is the disposal of all human excreta in such a manner that it will not be deposited on the surface of the ground. This may only be accomplished by the use of proper latrines. *If every person in Ceylon would deposit the excreta in the right type of latrine, hookworm disease would very soon cease to be an economic factor, and the incidence of such diseases as enteric fever, diarrhœa, dysentery, and other intestinal diseases would be greatly diminished.* Government has at present a force of Sanitary Inspectors working in the Matale District for the purpose of instructing the people in the installation and maintenance of the approved types of latrines. They will, no

doubt, be glad to give such instruction to those who may desire to do their share in the eradication of this scourge.

Other preventive measures consist of thoroughly washing the hands before eating or handling food, and in seeing that all servants do the same. Do *not* eat uncooked salads, &c., that may have been grown where infected excreta had been deposited. It is quite as important that the hands of the servants be free from infection as it is to eat only the proper kind of food. For example, food may be properly prepared and thoroughly cooked, but is allowed to cool before being served ; in the meantime one of the servants, who has been careless and has not washed his hands after handling infected earth or other filth, takes up this food and inadvertently or purposely touches some part of it, with the result that it becomes as dangerous as if it had not been cooked. Then, again, it is important to know that the water supply is above suspicion, for, although infection by means of drinking water is comparatively infrequent, it does occur.

CURATIVE MEASURES.—It is possible that a brief outline of the manner in which the work is carried on in the campaign may be of interest. A number of dispensers are employed, whose duty it is to compile a list of all the persons in their respective districts, in order that an accurate account may be kept of the treatments given each person ; they then give each person a small tin container, with the request that they place a portion of the excreta in it ; the next morning these tins are collected and sent to the laboratory at Matale, where a staff of microscopists is maintained for the purpose of examining each specimen with the aid of the microscope, the negative ones are then centrifuged, as it has been discovered that by this process something like 20 per cent. of the specimens at first found negative are then found positive ; these are the very lightly infected cases. A list of all positive cases is then sent back to the dispenser, who enters them in his treatment book and proceeds to treat them until cured. Oil of *Chenopodium* and *Thymol* are the two drugs used in the

campaign; they are about equally efficient in the removal of hookworms, but the former is much more efficacious in the removal of round worms and other species of intestinal parasites. More than half the people examined have been found to harbour round worms, and as many as four different varieties have been found in one person. Two treatments are given, and then, after waiting for a period of 7 to 9 days, the excrement is re-examined, and if found positive, another treatment is administered; this procedure is followed until a cure is effected, except that the excrement is examined after each treatment subsequent to the second one. The reason for waiting for a period of one week after treatment before re-examination is that the effect of the drugs is to stop the unexpelled female worms from laying eggs for, in some instances, 3 to 5 days.

How can you assist in eradicating this dread disease?

1. By building and using a proper type of latrine, and by influencing all of your friends to do the same.

2. By being examined and, if found infected, treated until cured, and by using your influence to persuade others to do the same.

3. By teaching those who are not familiar with the disease with regard to the effects produced as a result of infection, and the ease with which it may be cured.

4. By instructing your servants in the proper methods of cleanliness and sanitation.

5. By using boiled water for domestic purposes, unless you are able to secure water from a city or other system which is known to be pure.

6. By looking upon and acting toward the person who deposits the excreta on the ground as a menace to your health and to that of your friends.

Let every person start a campaign of education along these lines, and when the disease is eliminated as an economic factor, the Island and people of Ceylon will be greatly enriched thereby.

Small-Pox in Madras.*

[BY DR. K. RAGHAVENDRA RAO, ACTING MEDICAL OFFICER
OF HEALTH, CORPORATION OF MADRAS.]

THE object of this note is to determine the causes of the abnormal and continued prevalence of small-pox in the City of Madras and the methods that should be adopted for checking the evil.

The ætiology of small-pox is very well-known in the medical world although the specific micro-organism causing the attack is not yet isolated. It is a highly contagious disease and the infective agent is contained in the crusts and scabs of the small-pox pustules. The transmission of the contagion is both ærial and personal, the bedding, clothing &c., of the small-pox patient being highly infective.

Small-pox occurs in Madras almost every year in a sporadic form. From the records I find that small-pox was epidemic in Madras in previous years, *viz.*, 1901, 1905, 1906, 1911 and 1912. In the intervening years a few sporadic cases did occur and the following table gives details:—

Year.		Attacks.	Deaths.
1901	} No. of attacks not mentioned in reports.		292
1902			69
1903			7
1904			12
1905			329
1906			620
1907		123	49
1908		114	13
1909		68	13
1910		278	116
1911		1060	480
1912		247	106
1913		136	34
1914		146	66

* Being a Special report submitted to the Government.

Given suitable conditions, namely, the contagion and susceptible people, it breaks out into an Epidemic. Its (small-pox) first out-break is "solely from the contagion of a previous case, and, although its severity may be intensified by uncleanly and overcrowded houses and insanitary surroundings, as is the case with all infectious diseases, it cannot be originated by any such conditions by themselves." In slums reeking with filth any disease once introduced takes a firm hold. Possibly a dry hot weather laden with dust helps in the dissemination of the infective agent to long distances. Over-crowding and congregation in large numbers of unprotected children and adults afforded suitable conditions for an epidemic outbreak of the disease.

In August 1915 a few sporadic cases occurred especially in the Parthasaradhi Koil Kuppam and other parts of Triplicane and in some parts of Purasawalkam and Perambore amongst people coming into the Town from the surrounding villages where small-pox was very prevalent just then. In September we had 42 cases; efforts were at once made to trace early cases, and in fact we were able to keep down the disease till about the middle of December 1915 as the figure in the following table will show:—

<i>1915.</i>			
		<i>Attacks.</i>	<i>Deaths.</i>
September	..	42	14
October	...	32	15
November	...	18	9
December	...	55	17
		<hr/> 147 <hr/>	<hr/> 55 <hr/>

<i>1916.</i>			
		<i>Attacks.</i>	<i>Deaths.</i>
January	...	255	64
February	..	349	80
March	...	340	113
April	...	179	75

		<i>1916.</i>	
		<i>Attacks.</i>	<i>Deaths.</i>
May	...	96	37
June	...	65	29
July	...	62	28
August	...	45	19
September	...	28	10
October	...	25	10
		<hr/> 1444	<hr/> 465
Grand Total	...	<hr/> 1591	<hr/> 520

During December there was a large concourse of people into the City to witness the Park Fair Exhibition and tamashas and I had received several complaints of cases just recovering or convalescent from small-pox, travelling into Madras. In fact every Corporation official who worked as a volunteer during this occasion has noticed cases with small-pox in the scabbing stage within the enclosures of the People's Park.

The rainfall in the quarter ending with 31st December 1915 was comparatively less than in previous years, viz., 23·84 inches as against an average of 34·4 for the five year period and this I consider helped in keeping the weather drier than usual. There was a large influx of people who lodged in a most haphazard fashion and the infection that had just started flared into an epidemic. This is what usually happens in every place of pilgrimage with regard to outbreaks of cholera and small-pox under similar circumstances.

The disease was declared epidemic on 22nd January 1916 and the severity of the outbreak lasted for 4 months (between January and April 1916). From May onwards the disease rapidly declined so that in May 1916 we had only 96 attacks and 37 deaths. The City was declared free on 23rd September 1916 after we were assured that it had ceased to be of an epidemic character, and with the consent of the President of the Board of Health.

From January 1916 to 31st October there have been 1444 attacks and 465 deaths and between September and December 1915 there were 147 attacks and 55 deaths. The grand total number of attacks and deaths from 1st September 1915 to 31st October 1916 (14 months) is 1591 and 465 respectively. The mortality rate amongst the attacked is 29·2%. These figures though they look large do not it is feared represent the actual total of attacks, notwithstanding the fact that special efforts were made during the year to make the figures of vital statistics (including figures of small-pox cases) as accurate as possible. "It is probable that during epidemic periods small-pox is very frequently spread by the number of mild and not easily recognisable cases of the modified disease in vaccinated persons and the failure to distinguish chicken-pox from this type." It is to avoid this source of error that a house to house inspection in the infected locality was undertaken and several cases that might otherwise have been missed were this way traced. Still, as I have said before, a number of cases may have been missed. The same remarks apply with even greater force to the figures in the previous years.

From the table put up above, it will be seen that small-pox occurs in an epidemic form at certain intervals—the intervening years having a few sporadic cases. This is to be explained by the fact that *re-vaccination* is not compulsory.

Vaccination does not confer permanent immunity against small-pox. It may be taken to last for a period of 7 years. In the pre-vaccination days, small-pox was a disease of children unprotected and susceptible to the disease. Since vaccination was made compulsory for children, adults, who were vaccinated in their infancy and who are not immune to the disease in their adult life suffer most. In other words, they are like unprotected children as far as their susceptibility to small-pox is concerned.

As to the methods of checking the evil, there is no measure so efficient as getting oneself protected against the disease, i.e., every one must be vaccinated. Primary vaccination is

compulsory in the City of Madras and the laws to enforce vaccination are strict enough. But the lay citizen of Madras must be educated further before he submits to the operation of his own free will. Much opposition is met with in the exercise of these laws but still over 16,000 children under one year are primarily vaccinated annually. (For 1915 total vaccinations 29,990: children under one year 16,442). Vaccination should not stop here. As already stated the immunity wears away in the child after about 7 years and he becomes susceptible to the disease again. This means that he must be protected again, i.e., re-vaccinated. Immunity against small-pox *for life* is usually conferred on persons *successfully* vaccinated on two occasions. The word *successfully* is very important. It is no use getting a small scratch with a lancet bearing a little lymph and saying that one is re-vaccinated.

During the epidemic this year special efforts were made to extend re-vaccinations as widely as possible and between November 1915 and April 1916 over 40,000 persons were re-vaccinated.

What usually happens is this: One epidemic strikes a panic into the population and people willingly submit to re-vaccination—a large number of these are protected. The absence of an epidemic in the few succeeding years is probably due to the presence of such protected individuals in the community; and, as there is no law enforcing re-vaccination, this wholesome practice of being re-vaccinated and thereby getting a fresh protection is lost sight of and when there are sufficient susceptible individuals and the contagion is introduced, up starts an epidemic. The number of cases re vaccinated during the five years 1910—1914 (both inclusive) is as follows:—

1910	... 7,769
1911	... 13,249
1912	... 35,512
1913	... 3,755
1914	... 4,622

From the above it is seen that re-vaccinations performed during the five years prior to 1915 was practically negligible for a population of nearly 520,000. In 1911 there was an epidemic, the number re-vaccinated is slightly more. The majority of these are performed on persons who, seeking employment in Government offices and in factories, ask for a vaccination certificate.

The preventive measure resolves itself into making *vaccination and re-vaccination compulsory* aided by prompt isolation. "The isolation of small-pox cases in Hospitals is a useful auxiliary to vaccination, but it is not a sufficient substitute owing to the inevitable failure to secure isolation in all cases with the necessary thoroughness and promptness. Such failure results from parents not observing the early symptoms of the illness, the neglect to call in a doctor, the difficulties of diagnosis, the delays in removal, the probable inadequacy of the Hospital accommodation during an epidemic and the possible inefficiency of disinfection of infected articles; and hence it is that more stress is held on vaccination and re-vaccination than isolation."

It is too much to expect that re-vaccination were made compulsory when primary vaccination is not made compulsory over the whole Presidency. At least it may be made compulsory for contacts to get themselves re-vaccinated. Just as inoculation in plague times gives certain liberties to the contact of a plague case, the contacts of a small-pox case may be treated with leniency if they get themselves re-vaccinated.

Small-pox under the Act, is notifiable but only by medical men of the Allopathic system and by Ayurvedic Physicians and Hakeems. The lay public have no responsibility in the matter. Would it be possible to make the small-pox a disease to be "*compulsorily notified*" *by every one who has a cognisance of its existence*? Then we might hope to act promptly in the very early sporadic cases and so stop the spread of the disease. At present we come to know of the existence of a

dangerous disease—this is especially so in small-pox—either after death or during the convalescent period of the sick person. In either case we are too late and the infection may have been carried to other places.

The usual prophylactic measures such as isolation of cases, disinfection and observation, &c., are strictly enforced in every case, that we can get hold of.

I may add one remark which has an important bearing on the spread of small-pox in South India so far as I know it. People consider small-pox (and cholera to a somewhat less degree) as Divine visitations, and frequently object to medical interference on religious grounds. This objection, I as an Indian know to be sincere in many cases, however misguided it may be.

Personal Hygiene.

[By DR. M. R. SAMEY, M.D., D.P.H., (U.S.A.), M.R. San. I.,
(LONDON.)]

II.—Smoking.

SMOKING has well been captioned as a “Relic of Barbarism” by Dr. Kellogg. Very appropriate in its application is this term in view of its origin. Originating with the wild barbarians of America, the smoking habit was, after some years, introduced into Europe; and receiving the sanction of the physicians who, just at that time, chiefly occupied themselves in searching for some new noxious compound with which to experiment upon the lives of their patients, it was rapidly adopted, not only by the lower classes, but by those in high authority, even princes and nobles participating in this intoxication. This evil custom has enslaved many millions of people in its toils and within a few centuries fixed itself so firmly upon the populace, and become so widespread as to be practically universal among mankind.

Inhalation is the most speedy way of getting any volatile poison into the system. The reason of this is obvious when it is remembered that the lungs present a mucous surface fourteen hundred square feet in extent, every inch of which is in the highest degree capable of absorbing gaseous substances brought in contact with it. This membrane is of the most marvellously delicate character, being of such exceeding thinness that it forms scarcely any obstacle to the passage of gases which enter the lungs by respiration. Just underneath this delicate membrane passes all the blood in the body, or an amount equal to the whole quantity of the blood, once every three minutes. The vapory poison inhaled by the tobacco-smoker is not simply taken into the mouth and then expelled, but it penetrates to the remotest air cells, and spreads itself out over the whole of the immense extent of membrane stated. Thus it can be seen that the blood of the smoker is literally bathed in the narcotic fumes drawn from his pipe or cigar.

The vivid summary of the symptoms of chronic tobacco poisoning by Dr. B. W. Richardson, one of the highest English medical and scientific authorities, is given here *in extenso*, as it cannot be excelled :—

“ Smoking produces disturbances—

“ *a.* In the blood, causing undue fluidity and change in the red blood corpuscles.

“ *b.* In the stomach, giving rise to debility, nausea, and in extreme cases, sickness.

“ *c.* In the heart, producing debility of that organ, and irregular action.

“ *d.* In the organs of sense, causing in an extreme degree, dilatation of the pupils of the eye, confusion of vision, bright lines, huminous or cobweb specks, and long retention of images on the retina, with other analogous symptoms affecting the ear, viz: inability clearly to define sounds, and the annoyance of a sharp, ringing sound like a whistle or a bell,

“*e.* In the brain, suspending the waste of that organ, and oppressing it if it be duly nourished.

“*f.* In the nervous filaments and sympathetic or organic nerves, leading to deficient power in them, and to secretion in those surfaces—glands—over which the nerves exert a controlling force.

“*g.* In the mucous membrane of the mouth, causing enlargement and soreness of the tonsils,—smoker's sore throat,—redness, dryness, and occasional peeling off of the membrane, and either unnatural firmness and contraction, or sponginess of the gums.

“*h.* In the bronchial surface of the lungs, when that is already irritable, sustaining the irritation and increasing the cough.”

The above quotation is of peculiar force, coming as it does from a man who is not only well qualified to speak on the subject from his scientific attainments and large experience, but is well fitted to speak authoritatively, and certainly without prejudice against tobacco, himself being, from force of long habit, a smoker.

The fact is established beyond the possibility of any tenable cavil, that tobacco is a poison, deadly in large doses, pernicious and harmful in all doses. It taints the breath, ruins the digestion, obliterates taste and smell, spoils the blood, oppresses the brain, depresses the heart, irritates the nerves, wastes the muscles, obstructs the liver, dims the vision, stains the skin, and deteriorates and contaminates every organ and tissue with which it comes in contact in the body. Its influence is to lessen vitality, to benumb the sensibilities to shorten life, to kill.

I close this subject of smoking by way of quoting Mr. Solly, F.R.S.:

“Look at the pale face, imperfect development, and deficient muscular power of the inhabitants of unhealthy

malarious districts. They live on, but with only half the attributes of life. So it is with the habitual smoker."

What has been said as to smoking tobacco is with equal force applicable to the habit of chewing or snuffing the filthy weed.

Water Waste Prevention in Bombay.*

[BY J. E. HENSMAN, SPECIAL ASSISTANT ENGINEER, WATER WORKS, CORPORATION OF MADRAS.]

IN his report on the "Madras City Water Distribution Scheme," dated September 1911, the Special Engineer said: "It is strongly recommended that the waste water meter system be applied to Madras at the same time that the new distributary pipes are laid. It can be readily done at that time at much less cost than would be involved if the system were applied to a net-work of pipes not designed for it. The desirability is emphasised by the examples of Bombay and Calcutta. In both these Indian cities, the inhabitants have had to put up with all the inconvenience, and the great dangers to health which accompany an intermittent supply such as many parts of Madras now receive."

"In both Bombay and Calcutta the Waste Water Meter System has been adopted to enable the authorities to provide a constant supply. In Madras it will be well to introduce the system at once, so that the new supply may from the beginning possess the great advantage of being continuous throughout the day."

Description of the
Waste Water Meter.

2. I will now try and describe the system itself as simply as possible.

* Mr. J. E. Hensman was deputed to study the water waste prevention methods adopted in Bombay. On his return, he submitted a Report from which we extract the above note with the kind permission of Mr. J. W. Madeley, the Special Engineer of the Corporation

The meter used on the system for the detection of waste of water in public supplies is known as the Deacon Meter, and is very ingenious. The accompanying figure shows the meter

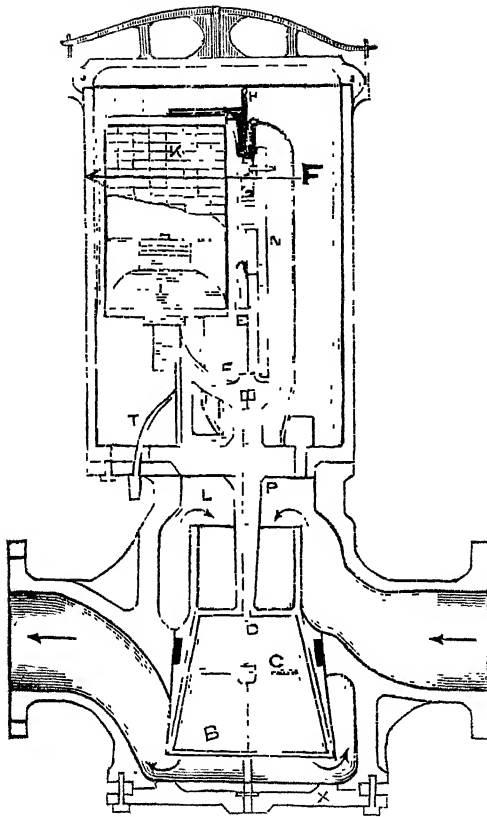


FIG. 1.

in perspective. This was invented by the late G. F. Deacon and consists in its essential parts of a conical tube B in which is suspended by means of a wire E and vertical stem D a horizontal disc C. This disc is of such a size that when it is at the top of its stroke, *i.e.*, when no water is passing through the instrument it exactly fits the small end of the cone B. A fine wire E passes from the top end of the stem D through a packing gland F. The upper part of the wire E is connected to a pencil G with a guiding carriage, which is suspended over the pulley H and kept taut by the weight I. The latter is made a certain amount heavier than the disc, so that the disc

may remain at the top of its stroke or exactly fitting the small end of the cone B in its normal position. The point of the pencil presses on a cylindrical drum K, round which is wrapped a metallic paper diagram form which is divided horizontally into "gallons per hour" and vertically into time spaces. The drum K is revolved at a uniform rate once every six hours, twenty-four hours, or seven days, by the clock J partly contained within the drum, and the position of the pencil at any moment is recorded on the diagram by the combined movements of the drum which is revolved by the clock, and the pencil which is moved vertically by the disc C. This meter is fixed on a street main, and not on house connections. Its action may be thus explained.

3. When water passes through the meter, the disc C is pressed down forming an annular space between the circumference and the inner surface of the cone B. This space is the water way for the passage of water, and its area is strictly proportional to the rate of flow. For example, if the rate of flow is 1,000 gallons per hour, the flowing water will press the disc C down until the annular space between the disc and the inner surface of the cone is just sufficient to allow water to flow at this rate under a head sufficient to keep the disc in equilibrium, and so on for any other rate. As the disc descends, the area for the passage of the water is increased and *vice versa*, and for any stated rate of flow there is only one position of the disc, and consequently if the flow varies, *i.e.*, increases or decreases, it is accompanied by an immediate change of position of the disc. The pencil being connected to the disc, every movement of the latter is reproduced and recorded on the diagram. When no water is passing, the disc is at the upper end of the cone B.

4. The time spaces in the diagram are divided into periods of one hour each, which again may be sub-divided into intervals of one minute each also. The horizontal divisions into gallons per hour are divided into spaces representing supplies at the rate of 100 to 500, 600 or even 10,000 gallons

per hour. The difference between a waste detection meter described above and an ordinary meter fixed on a house connection is this. In an ordinary house meter, the supply in 6 or 24 hours or any other stated period appears as a lump sum on reading the dial. In a waste detection meter the supply in a stated period is split up or "differentiated" into its component hour or shorter period quantities, and by a glance at the diagram one can easily determine not only the total quantity passed, but also how much passed at any instant.

5. The following example will make it still clearer. Supposing a 3-inch main supplies a district, and we want to know how much water is consumed by the residents of the district in 3 hours, say, between 6 p.m. and 9 p.m. on any day; also assume that the consumption for 3 hours is 3,000 gallons. A meter of the type fixed on house connections will only give you the consumption as a lump sum, and when the dial is read at 9 p.m. the difference between the readings at 6 p.m. and 9 p.m. will equal 3,000 gallons. A waste detection meter fixed on this main will show at what rate the water was consumed. The diagram will show something like the following:—

Time.	Rate of Consumption.		
1. 6 to 6-30 p.m.	@ 500 gallons per hour		
2. 6-30 to 6-50 p.m.	1,200	do	do
3. 6-50 to 7-35 p.m.	600	do	do
4. 7-45 to 8 p.m.	1,000	do	do
5. 8 to 8-30 p.m.	1,800	do	do
6. 8-30 to 9 p.m.	1,500	do	do

It will thus be seen that the consumption is split up and the total consumption from 6 p.m. to 9 p.m. could be easily calculated thus:

1. At 500 gallons per hour for $\frac{1}{2}$ hour	250 gallons.
2. At 1,200 do do 20 min.	400 do.
3. At 600 do do 45 min.	450 do.
4. At 1,000 do do 15 min.	250 do.
5. At 1,800 do do 30 min.	900 do.
6. At 1,500 do do 30 min.	750 do.
	<hr/>
Total	3,000 do.
	<hr/>

6. It will be found that the total quantity consumed calculated as above amounts to 3,000 gallons for the 3 hours. So from this meter we obtain not only the quantities passed, but also the rate at which the supply was taken for every minute of the 3 hours.

7. In the operation and maintenance of any large distribution system, such as that of
Detection of waste, Bombay or Madras or Calcutta, in addition to questions of construction, we have to consider the cleaning of pipes, detection of leaks, repairs of pipes, prevention of corrosion, provision against electrolysis, care of valves and hydrants and other fittings, detection and prevention of waste, and the use of meters. The detection and prevention of waste only will be dealt with now. In Indian cities as well as in European and American cities a very large percentage of the water-supply is wasted by the consumer and lost by leakage. In many cities the consumption is nearly double the actual requirements, and the wastage, in a very large proportion of them, is fully one-third of the entire quantity supplied.

8. To determine and control the waste, a system of inspection by districts is adopted. This system of district inspection was introduced in Liverpool in 1873 by Mr. G. F. Deacon, and the waste water meter described above was devised by him to determine the flow. This meter is now in extensive use in England and America, and has been employed on the distribution system in Bombay, Calcutta, and Rangoon.

9. In the district system of inspection, the city is divided into districts or blocks, each self-
Description of the waste water meter system. contained, so that it can be isolated from the rest of the city, and water supplied to it through only one pipe on which the waste water meter is fixed, the valves (except the one above the meter) on all the other communicating pipes just outside the district being closed.

10. Between 11 P.M. and 4 A.M., when people are at rest, and business and domestic works suspended, there should be little or no use of water. Now if a diagram is fixed on the meter controlling a district, say for 24 hours, and taken out and examined, and if the diagram shows that the night consumption has been large, it indicates that there is much waste, and efforts are then directed to localise this waste. A concrete example will explain the *modus operandi*.

11. Fig. 2 on the opposite page is a small district in the Purasawakkam Division of Madras. It is proposed, for the detection and investigation of waste, to fix a Deacon Meter at M. The various steps in the order of procedure in the investigation of waste will be described in detail.

12. Isolate the district so that water passes through Deacon Meter only. The valves that will have to be closed to isolate this district, so that the supply may pass through the meter only are marked 1, 2, 3, 4, 5, 6, 7, 8, and 9 on the plan. When these are closed, water to the district can only pass through valve No. 10 which is just above the meter. The meter may be fixed on a bye-pass also.

13. Close valve No. 10 above the meter and fix diagram.

14. Re-open valve No. 10 and let water pass for 15 minutes or so, in order that quantity passed may be recorded on the diagram. The rate shown on the diagram will indicate the normal consumption at the time of investigation including waste.

15. Begin investigation for waste. For the purpose of detecting waste, an aquaphone or stethoscope is used. It is nothing but a hollow iron tube with an ear piece attached—This is placed against stop cock or the road or pavement or over the pipe at various points when any water passing through or leaking can be heard and localised. The procedure is now to begin with the furthestmost point in the street. In the case under reference we begin with Sundaram Pillai Street from Valve No. 6 and work on towards Valve No. 1 in the same

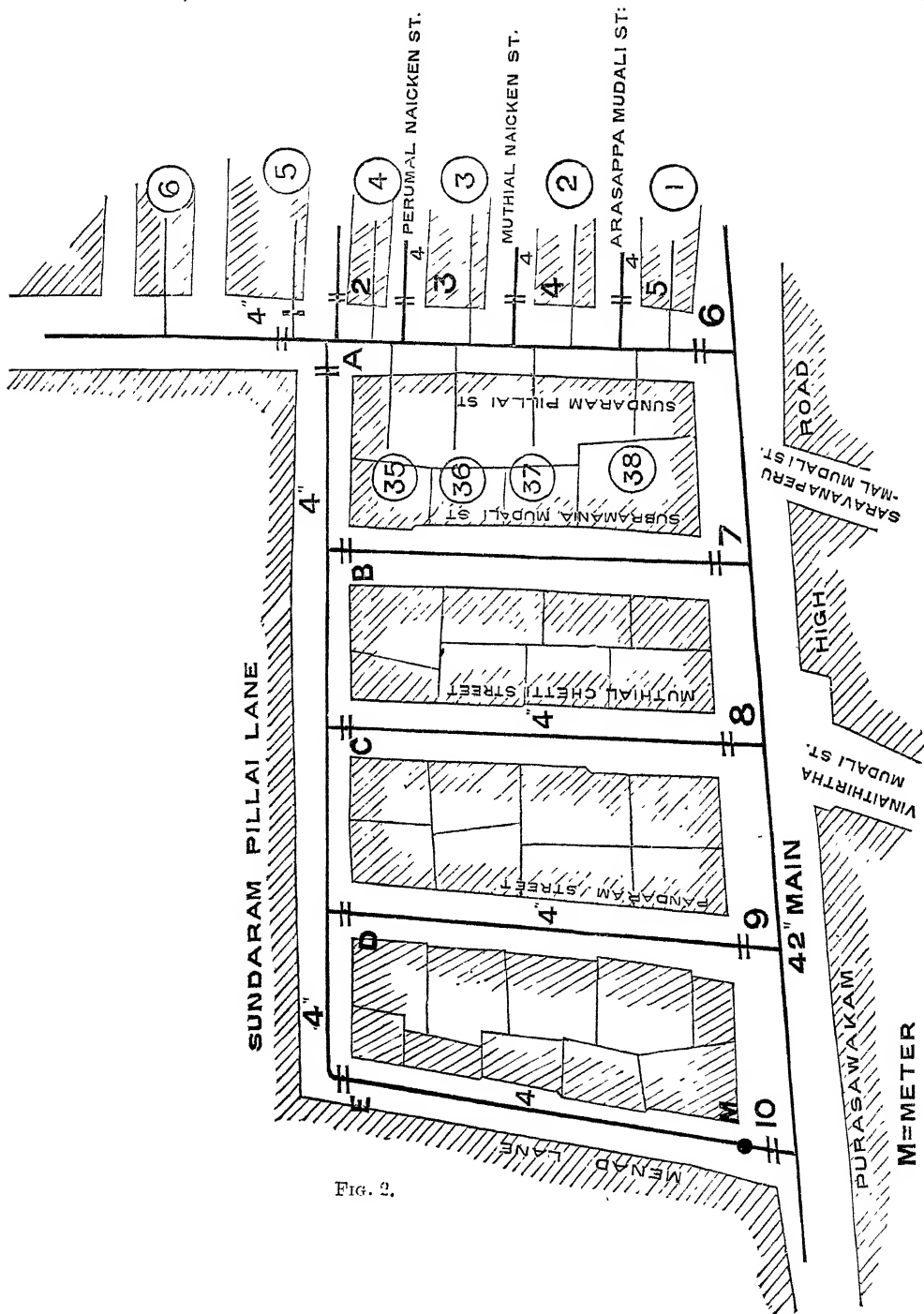


FIG. 2.

Street. Having noted the time of starting of investigation, the Inspector places the stethoscope against the stop cock of House No. 1. If he hears a noise he notes it down in his waste inspection field book. This book contains the following columns :—

- | | | |
|------------------------------------|---|--|
| 1. Name of street. | } | To be filled in previous to investigation. |
| 2. No. of premises. | | |
| 3. Size of service pipe. | | |
| 4. Stop taps No., size and kind. | | |
| 5. Drawing taps No. size and kind. | | |
| 6. No of storeys in the house. | } | To be filled in during night investigation. |
| 7. No of storage tanks. | | |
| 8. Open. | | |
| 9. Time closed. | } | |
| 10. Shut. | | |
| 11. Nature of defect. | } | To be filled in during day investigation after night work. |
| 12. Notice No. | | |
| 13. Date of service. | | |
| 14. Date of repairs. | | |
| 15. Remarks. | | |

16. This is the form in use in Bombay, and could with slight modifications be adopted for Madras or any other city or town. Information required for columns 1 to 7 is entered by the Inspector or his Assistant at any convenient time during the day previous to investigation, and it is only columns 8 to 15 that are filled in during and after investigation.

17. Returning to actual investigation, the Inspector after sounding the stop cock of House No. 1 in Sundaram Pillai Street, and finding a noise, in column 8 notes "Noise," as the word "Open" stands for result of sounding when the stop cock was open. Having registered the "noise," he closes the stop cock and notes exact time of closure in column 9. He then sounds the stop cock again, and if he still finds noise he notes "noise" in column 10, for "shut" stands for result

of sounding when stop cock is shut. Now a noise located in a stop cock after it is shut means :

- (1) that the stop cock is leaking, or
- (2) there is a leak in the communication pipe between the stop cock and the main or,
- (3) there is a leak on the main itself not far from the stop cock.

The Inspector sounds the road at various points over the communication pipe, and if the leak is on the communication pipe the spot of maximum loudness is easily found and noted.

18. If, however, there is no such sign visible, the main itself is sounded. Should the leakage be considerable, the sound will generally be heard on the stop cocks of adjoining houses, and by its relative loudness an approximation is made to its position. In cases where such a course is not possible, the road surface over the pipe is sounded at various points until a spot of maximum loudness is located, and its position is noted. This invariably discloses a burst pipe or leaky joints or ferrule when the ground is opened subsequently.

19. The Inspector then goes to house No. 38 sounds the stop cock and finds "noise" which he notes in column 8, then closes it, notes exact time in column 9, sounds again, and finding no noise notes results as either "good" or "no noise" in column 10. "Noise when stop cock was open, no noise or good when stop cock was closed." What does this indicate? It means that there is waste inside the house concerned, and that there is no leak on the stop cock or communication pipe or the street main near the stop cock. It shows that at the time of inspection water was passing through the stop cock. This water may be

- (1) water being drawn by the inmates for legitimate use at the time of inspection or,
- (2) a leaky tap or other fitting in the house installation or,
- (3) a tap kept open or left running or,
- (4) a storage tank overflowing, etc.

20. The next day all such houses whose stop cocks recorded "noise" before closing and "no noise" after closing, are inspected, and the installation carefully examined. If the examination discloses a leaky tap or house pipe or ball valve out of order, etc., the fact is noted in column 11.

21. Having described in detail the procedure in actual investigation, it remains to illustrate a typical Deacon Meter Diagram and explain how it is interpreted.

22. The diagram given printed on the opposite page was taken for a locality known as Ridge Road in Bombay after closing the boundary valves in the districts and letting water through meter only. From the diagram it will be seen that the investigation commenced about 11-15 p. m. and concluded at 4 a. m. Now for every stop cock closed, if such a stop cock recorded "noise" when open, and "no noise" when closed, it follows that when the stop cock is closed, there must be a drop in the consumption. These drops are clearly indicated X on the diagram. If, however, no noise is found before stop cock is closed, there should be no drop on the diagram. These closures are also noted X on the diagram. As the times of "shut" are recorded in the field book, these times are automatically recorded by the meter also on the diagram, especially by the drop shuts. Say, for instance, House No. 11 in Ridge Road was shut off at 12-57. This is noted in the field book, and the Assistant Inspector looks at the diagram and finds that at 12-57 there is a drop and writes on the diagram against this drop, "shut House No. 11". This is how the various "shuts" taken from the field book are identified and noted on the diagram. In the cases where there are no drops the corresponding entries are made on the diagram at the times noted in the field book. After all the valves and stop cocks have been closed except the valve above the meter, the diagram still shows that water has been passing through the meter; this water is what is wasted or leaks through "invisibly". In the diagram, the wastage or "waste line"

Interpretation of
diagram.

or "invisible leakage" is about 180 gallons per hour. What then does the diagram indicate? It indicates that there has been both visible and invisible leakage. The invisible leakage or leakage through main and service pipes between main and stop cocks is 180 gallons per hour as shown by the "waste line" in the diagram. (It is actually slightly lower in the figure owing to a mistake by the engraver.) The visible leakage or wastage caused by leaky taps and fittings, taps left open and running is obtained by totalling all the drops shown by the mark X in the diagram. The total of these drops is approximately 700 gallons an hour, so the total wastage is 880 gallons per hour. From this the wastage for the day could easily be calculated. These results of investigation are all recorded in a register by the Waste Inspector containing the following columns:—

- | | |
|---------------------|------------------------------|
| 1. Serial No. | 6. Leakage. |
| 2. Ward or Door No. | 7. Defects. |
| 3. Locality. | 8. Date of previous tests. |
| 4. Date of test. | 9. Total No. of connections. |
| 5. Consumption. | 10. Remarks. |

23. These are again abstracted and copied in another book maintained permanently in the waterworks office. This book contains the following columns:—

1. Pigeon hole No.
2. Diagram No.
3. No. of connections.
4. Date of test.
5. Name of District.
6. Size of main and meter.
7. Approximate length of main in feet.
8. Pressure at time of observation in lbs.
9. Maximum daily supply in gallons per hour.
10. Average night supply in gallons per hour.
11. Leakage and wastage.

(a) Underground (invisible)

(b) Above ground (visible)

(c) Consumption owing to taps left open and water used.

12. Defects underground.
13. Defects aboveground.
14. Remarks.

It is from this book that the figures are abstracted for the annual administration report. These forms may be adopted to suit local conditions for any city or town.

24. Waste prevention in Bombay was started as far back as 1882 when about 100 Deacon meters were installed on the distribution system. All these meters are still in use, and are in excellent working order. The number of meters was increased with the extension of the distribution system, until now there are 283 meters fixed on the mains. In addition, there are four portable meters which are used for localities where no meters have been fixed for want of funds. The number of such localities which are examined with portable meters is about 400. These districts will be gradually metered as funds permit. Previous to 1904, the results obtained from the waste prevention system were not systematically recorded. In February 1888 it is reported that 2,250,000 gallons per diem had been saved by the Water Waste Prevention Staff by 18 months work. This was then equal to one-seventh of the total daily supply, and at cost price was worth Rs. 562 per diem, whereas the waste prevention at its full strength cost only Rs. 70 per diem. From 1906, however, the figures are available and the following table shows the results obtained.

Waste Prevention
Branch in Bombay.

Year	Wastage per cent. of consumption.
1906	28.2
1907	23.9
1908	10.8
1909	10.4
1910	8.2
1911	6.2
1912	4.0
1913	4.6
1914	3.55
1915	3.75

The slight excess in 1915 is due to constant supply introduced from last June.

25. The following is the staff employed on Waste Prevention in Bombay :—

1 Superintendent	...	Rs. 300 to 400 plus Rs. 50 C.A.
1 Clerk	...	„ 25 to 40
1 Draftsman	...	„ 30 to 40
6 Inspectors	...	„ 110 to 135 plus Rs. 25 C.A.
6 Asst. Inspectors	...	„ 60 to 80 plus Rs. 5 C.A.
6 Head Coolies	...	„ 17
40 Coolies	...	„ 13½
4 Peons	..	„ 14 to 15

Local Administration (1915-16).

[Bengal.]

THE review of the Bengal Government on the reports of the District Boards in that province for the year 1915-16 does not present many features of interest or give a clear insight into the conditions and proposals of the working of the local boards. The Bengal Government recognise that the local boards are hampered by the absence of adequate powers to manage local affairs and the restriction of their authority does not conduce to vitality and growth in local self-government. These boards merely administer such funds as may be placed at their disposal by the District Boards for roads of minor importance, village sanitation and water-supply and are in charge of pounds and ferries. In spite of these drawbacks, the Government observe that there is a noticeable increase of keenness to serve on local boards, because members have been given the privilege of voting for the Provincial Legislative Council, and that the election proved a failure only in the case of one local board.

As regards union committees, the review states that the reports give varied accounts of their utility. Some are stated to be efficient and successful, while others do little good. In some districts they show great reluctance to impose local self-taxation for the supply of sanitary needs, and even those which have power to do so find excuses for not exercising their power.

The following quotation will be of interest :—

“ Local taxation is of course unpopular, but at the same time experience has shown that when the villagers see improvements effected as the result of taxation raised and spent locally, their objections die away and taxation is tolerated, if not welcomed. If union committees are given a fairly free hand, are not harassed with intricate account rules, returns and all the accompaniments of an up-to-date administration, but are gently guided and advised and helped to surmount the difficulties, there is every justification for hoping that in time they will take more and more interest in their work, exercise their powers more widely and more fearlessly and in time become very valuable units in the administration.”

The stability of the income of District Boards and a further increase of spending power are noticeable features of the year's working. The resources of the District Boards were augmented by approximately thirty lakhs three years ago by the transfer of the Public Works Cess. The District Boards were informed in February 1914 of the desirability of devoting a substantial portion of this increased income for sanitation, improvement of the water-supply, anti-malarial measures; while in 1915 they were advised to utilise large sums for the excavation of tanks in rural areas. It is observed that during the last triennium the average annual expenditure on education increased by nearly nine lakhs, on medical relief (including special anti-malarial measures) by over three lakhs and on civil works (including water-supply and drainage) by a little over twenty-one lakhs. In the case of education it is difficult to say how far the increase is due to appropriation from the Public Works Cess, as the District Boards had large Imperial grants which they were unable to spend in full in previous years and the balance of which they had gradually drawn upon.

Taking the figures for the province as a whole, it is noted that 23·3 per cent. of the Public Works Cess was

spent on water-supply during the year under review. The Governor in Council recognises that there has been a considerable advance in providing good drinking water in rural areas. Difficulties seem, however, to be in the way of spending large amounts with advantage, because programmes and detailed schemes are not promptly prepared and the necessary organization is not ready.

Under Education it is observed that the total sum spent on primary schools was over 18 lakhs or double the allotment made for this purpose from the Imperial grants. It will be a matter of interest to note that the Governor in Council re-affirms in the review as the established principle 'that until full provision has been made for primary education in a district, no part of the district funds should be diverted to the support of education of a higher kind, since this is beyond the needs of the majority of the tax-payers and may well be paid for by those who desire it and can afford it.' Difference of opinion may exist in regard to the wisdom of this principle. However necessary the provision of primary education may be, the advantages of providing facilities for secondary education to the few cannot be derived. The one is bound to react on the other and simultaneous provision for both seems to be necessary, though it is a question of degree in each case.

It is disappointing to note from the Local Government's review that no progress has been made by the special and technical schools maintained by several district boards in the province. The want of a genuine widespread demand for technical education in the interior of the Presidency is brought to notice prominently by the fact of the artisan class of a school maintained by the District Board having only three students on the rolls each enjoying a scholarship. Similar results were noticed in another Industrial school.

Provision of medical relief seems to have engaged some attention, and the expenditure on this account increased by

over a lakh, mainly in West Bengal. The number of dispensaries maintained rose by 22 during the year and an interesting experiment was started by deputing a peripathetic doctor during the fever season to treat the crowds of villagers who attended settlement camps in an area where no medical facilities were available. The experiment is reported to have proved a success owing to the doctor working under supervision of an assistant Settlement Officer. The Governor in Council invites the attention of District Boards in which settlement is in progress to the results of this interesting experiment; and we would commend this to the notice of our District Boards also, especially in connection with the itinerating dispensaries now working in some districts.

[The Punjab.]

The general constitution of the district boards remained unchanged during the year. The local Government have instituted inquiries to ascertain if there is a general desire and if conditions are suitable for an extension of the elective system to the 11 districts of the west Punjab where it is not at present in force. His Honour the Lieutenant Governor however observes that the figures furnished in the various district reports in regard to elections held during the year under review are not encouraging: that only 14 vacancies out of a total of 133 were contested and that candidates were secured with difficulty and in some cases even on official pressure for serving on local boards. A large number of seats open to election had also to be filled up by members nominated by Government. This state of things reveals clearly an apathy on the part of the people to local self-government work. The local Government therefore very properly draws the conclusion that the rural population of the province have been rather slow to appreciate and assimilate the elective system which is still foreign to their ideas and traditions.

The general working of the boards is characterised as satisfactory by the district officers; but His Honour the Lieutenant Governor is not prepared to accept this general

report without reserve. He observes that the way in which some of the boards are reported to have worked does not appear to be altogether encouraging, as the individual members of the local boards very rarely evince an interest in local matters and as their enthusiasm or interest is chiefly awakened only by questions connected with appointments or personal matters. It is, however, refreshing to note that there is also another side of the picture which reveals the steady development that is in progress in some districts and affords a reassuring proof of a growing interest on public service and intelligent appreciation of duties of district representatives. In regard to the working of the Lyallpur Board, the Government observe that quite apart from the fine record of works completed during the year which was made possible by the ample resources of the board, there is a spirit of intelligent initiative in the members who were successfully learning to undertake the burden of responsibility in public affairs. The disposal of routine business at general meetings is said to have been greatly facilitated by the recommendations of the financial sub-committee. The education sub-committees have exercised a real and healthy control over village schools and made it possible to carry out the annual repairs to such schools under the supervision of the teachers a system which the board has found both expeditious and economical. Two members were entrusted with the supervision of the construction of primary schools and they secured the completion of nearly thirty new buildings at a very moderate cost. A thorough review of the finances of the board has been undertaken and a programme of expenditure for five years has been drawn up with a view to making adequate provision for all services in due proportion and thus enabling each department to carry out its programme methodically. The Government Review further brings to notice that this good example of the Lyallpur Board is being followed by other district boards and that steps are being taken by them to utilise more and more the services of members for the purposes of supervision and even for the discharge of executive duties.

The general conclusion established from these instances is that interest in the general administration of the board is greatly stimulated by the responsibility attaching to the discharge of definite duties assigned to members individually. We strongly commend this system for the favourable consideration of our district boards in this Presidency.

The Lieutenant-Governor draws pointed attention to the fact that the extension of local self-government must involve increased expenditure on local objects and that the willingness of the people to assume extra financial responsibilities is the most effective test of their desire for such extension. It is pointed out that France and Italy are the two European countries in which rural self-government on the Indian model are most highly developed. In France, it is stated, the district and rural boards raise an annual revenue of £60,000,000 by rural taxation. Italy, a much poorer country, has a population (40 millions) and a land revenue (£4,000,000) twice that of the Punjab, but the district and rural board raise by local taxation £7,000,000 or nearly double the land tax; while in the Punjab, the Lieutenant-Governor deploras, any proposal to increase the resources of the board by taxation is stoutly resisted and the local rate is usually only one-tenth of the land revenue demand. The maximum local rate (one and two-third annas per rupee of land revenue) has so far been imposed in only eleven districts and its increase in other districts is one of the first questions to which the Lieutenant-Governor draws the special attention of the district boards. The total incidence of local taxation per head was only $3\frac{3}{4}$ annas in the Punjab as compared with 42 annas in Italy and the Lieutenant-Governor says that even allowing for the greater wealth of Italy the Punjab figure appears ridiculously inadequate.

Education appears to have received a very prominent attention and over 23 lakhs were spent under this head. A very cheering evidence of the increasing desire of the rural population for greater educational facilities is the fact that in

a number of districts the boards were assisted in providing suitable school buildings by the co-operation of the people themselves. The Lyallpur Board has started a workshop to turn out school furniture at an economical rate and this example has been rightly commended to other boards which are making a considerable increase in the number of their own schools.

Under medical relief His Honour the Lieutenant-Governor realises that the provision made for this all important service is inadequate and it is stated that in many districts with exceedingly high death-rates each dispensary has to serve 70 or 80 thousand persons. The Inspector-General of Civil Hospitals is instituting an inquiry to remedy this state of affairs.

One special and interesting feature of the work of the Punjab District Boards is the good work done by them in regard to the improvement of agriculture and the breeding of horses, cattle and sheep. Several district boards have sanctioned scholarships for a vernacular course of agriculture at the Lyallpur College and two boards, Sialkot and Amritsar, now possess demonstration farms. His Honour hopes to see many other boards co-operating with the Agricultural department in this way, as under expert management such farms should be a source of profit to the boards, besides fulfilling their primary purpose as object lessons of scientific methods. Interest in cattle-breeding was also well maintained ; as many as 181 bulls were purchased by boards and sold at half price to selected applicants with excellent results. New cattle-breeding sub-committees are also reported to have been formed in two districts and the existing sub-committees in others are said to be doing good work. Cattle fairs have also been organised by some district boards. So far as we are aware, no district board in this Presidency devotes its attention to this sphere of useful work and we cannot too strongly commend this work to their notice.

There is little to note with regard to the progress of rural sanitation. Mention should however be made of the action of a district board in having drawn up a set of simple rules which are reported to be now under consideration to regulate the collection of manure in villages and to ensure the purity of the water supply for adoption in villages which agree to them; and another board is contemplating the imposition of a sanitation tax. It is stated that such a tax is now in force in a considerable number of villages in various districts, but the reports are silent as to the efficacy of the measures which have been rendered possible by this self-imposed taxation in promoting the sanitation of the villages concerned. A Bill is reported to be in circulation for opinion, which is intended to provide a simple machinery of self-government suitable to small towns and larger villages.

The Amendment of Madras Local Boards Act.

II.

UNDER Section 33 (1) of the present Act, the entire executive power of the local board is vested in its president who, however, has discretion to delegate functions and duties to the vice-president. The Act makes the Collector, in the case of a district board, and the Revenue Divisional Officer, in the case of a taluk board, its ex-officio president but provides for the election of the president in either case, if the Governor-in-Council should so direct. The latter provision has been given effect to only in the case of some of the taluk boards. Both officials and non-officials are apparently content with the present Act in respect to this matter and they have failed to agree only as regards the use of the discretion of the Governor-in-Council in the direction of permitting local boards, particularly the district boards, to elect their own presidents. It is proposed in this article to confine our attention to the best form of executive for district

boards and the general principles that we shall arrive at will be found to be applicable in the main to taluk boards also.

On the one hand, responsible leaders of public opinion have clamoured for non-official presidents, nominated or elected, of district boards. They have found the principal arguments, in favour of this contention, in the famous resolution of Lord Ripon. So long as the Collector of a district is the president of a district board, the members of the board will have no chance of taking effective part in the management of local affairs, and will never realise that real power lies in their hands, and that they have real responsibilities to discharge. The Collector runs the business of a local board just as he runs the business of the various departments of the central government placed in his charge in the district and, as he possesses enormous influence for good or evil over the inhabitants of the district from whom the members of the district board have to be drawn, his occupying the chair at meetings overawes those members and they are unable to discharge their responsibilities with sufficient independence. The claim for non-official presidents has thus been made with the two-fold object of rendering the proceedings of district board meetings more lively and independent and of furnishing an opportunity, to the representatives of the people of the district, for exercising the wide administrative powers now wielded by the Collector-President. And with the object of placating official opposition, emphasis is not unoften laid on the heavy burden of a Collector's responsibilities which are growing heavier from day to day and the need that there exists for giving him substantial relief.

On the official side, it has been taken for granted that eventually the elected non-official should replace the permanent official in the presidency of a district board but that the time has not yet arrived for making the experiment. The arguments in favour of this view are familiar. If the Collector ceases to be president, he will be divorced from some of the most important aspects of district administration such as roads,

education, sanitation and medical relief, and will be relegated to the unenviable role of a mere tax-gatherer. He will be severed from healthy contact with instructed non-official opinion and will suffer a diminution in the prestige which he now commands and which is so necessary for sustaining his authority in the multifarious and important questions of administration with which he has to deal. Local board administration will lose in efficiency if a trained and tried administrative expert like the Collector is not at its head. Above all, it is difficult to find, in a district, the men with the capacity and leisure necessary for conducting the heavy administrative business which the president of a district board has every day to deal with. The Decentralisation Commission therefore came to the conclusion that, for the present, the Collector should continue to be the president and the Committee which recently reported on the measures for developing local self-government in the Bombay presidency came to an equally cautious finding, viz: "that the change from the Collector president to the non-official president should not be made except with caution and by way of experiment in advanced districts."

If, as conceded, the principle of the present enactment is sound, viz: that a president may be an elected non-official in whom the entire executive power of the board deserves to be concentrated, it is poor compliment to non-official competency and capacity and poorer recognition of the enormous advance that the country, during the last generation, has made in education and public spirit, that, 35 years after this principle was embodied in the statute book, we should be told that the time is not ripe for putting it into operation. The fact that even the late Mr. Gokhale was not quite prepared for substituting a non-official for the Collector in the presidentship of a district board is enough indication of the existence of a real difficulty in carrying out the alleged reform. It has been taken for granted that the chief executive office of the district board should be honorary, whether held by an official like the

Collector or by an elected non-official. The non-official looks upon it as something for which he must find a little spare time from his ordinary occupation. The majority of Collectors look upon district board work with only a sort of step-brotherly affection motivated by the feeling that they are not paid for the work they do in this connection. Efficient administration requires that the duties should be performed by one who realises that he gets a salary for doing so or that the salary he gets is intended to cover this work also. The average area of a district board in this presidency is about 5,300 square miles, and the average population about $1\frac{1}{2}$ millions. Every district board has to look after an average mileage of over 500 of roads. Excluding debt transactions, the average total income of a district board exceeds 4 lakhs and the average total expenditure amounts to about the same figure. The staff of a district board office ranges from 8 to 12 clerks and any one who has experience of office work knows how much business will be sent daily by such a large staff to its chief. Beside this, the latter has to control the District Board Engineer and a much larger executive and clerical staff working under him. Even putting aside the correspondence involved in the controlling and co-ordinating powers over taluk boards, the volume of work is so large and flows with such steadiness every day that it is against human nature to expect that it will all be done with efficiency for no remuneration whatever. The Collector-President now does all this business because he knows that he is accountable to Government which is sure to blight his prospects or otherwise punish him if he proved himself unequal to it. Even in non-regional areas like the bigger municipalities, whenever the volume of business has assumed large proportions, honorary chairmen with full executive powers have been found to be unsuitable. Either they have been replaced by full-timed paid chairmen or have been given, for their assistance, secretaries in receipt of substantial salaries who relieve them of a good portion of their work. An honorary executive chief is therefore obviously unsuited to a

regional board whose functions involve the transaction of so large a volume of administrative business.

If the bulk of the executive power of the district board should be entrusted to a salaried official, it is desirable from the standpoint of both efficiency and economy that that official should be the Collector. Like the Prefect in the French Department, he should be made to realise that he is not only the representative of the Central Government in the district but also the chief executive officer of the district board bound to carry out its resolutions. Though his salary is paid out of the central exchequer, it should be frankly recognized that a portion of it is remuneration for his work in connection with the district board. To give each district a separate salaried official will involve large additional expenditure especially as he would have to be an officer on a very high pay in order to command the prestige necessary for controlling highly paid officers under him like the district board engineer. The Collector already possesses such prestige and is actually doing the work. The introduction of a separate official on a high salary will lead to the creation of separate additional establishments in many directions for local fund work. Few people realise the enormous amount of work that is now done, for the benefit of the district board by the Collector as such and by his subordinates from the Revenue Divisional Officers down to the village karnam. Land cess, tolls, ferry receipts, market fees, avenue receipts—in fact, the bulk of the income of local boards is collected by revenue agency. In addition, revenue officials execute minor sanitary works, check the work of vaccinators and attend to all the treasury work of local boards. They do all this without any additional expenditure to local funds. They do not even get their travelling allowances for doing such work from the local boards; whereas even an honorary president of a taluk board under present conditions puts the board to increased expenditure at least in the shape of the travelling allowance drawn by himself. If a separate paid executive head is created, all this

unpaid help from the revenue officials is bound, in course of time, to be lost to local boards, and this will mean a very large increase in the expenditure on establishments. But the strongest reason for entrusting the bulk of the executive work of the district board to the Collector is that it will secure the maximum of efficiency in administration. He is, *prima facie*, an expert in administrative details and will therefore be in a better position than an amateur non-official to maintain discipline and to make the most out of the servants of the board.

The elected non-official president who is also the repository of the entire executive power of district boards has—it has to be recognised—for long been looked up to as the goal of local self-government in this country and even official opinion has never sought to question this as an ideal, though, in view of practical administrative difficulties, it has, in a fugitive manner, argued that it cannot be realised for the present. The first misconception under which this ideal labours is that it confuses self-government with the discharge of detailed administrative functions by non-official amateurs. Self-government really means that the popular body should have efficient control over its executive and see that its wishes are carried out by the latter. To compare great things with small, the British Parliament does not administer the affairs of the realm; it only controls those who do this business by enforcing ministerial responsibility. Self-government is not necessarily achieved by the holding of executive office by the sons of the soil. This is now getting recognised in India in the field of Central Government; it is not unoften that we now hear that the path towards self-government does not lie in the direction of securing a larger number of higher appointments for Indians but in the direction of developing the control of the popularly elected body over executive officials. Provided that, in matters of local government, the Collector is legally obliged to carry out the resolutions of the district board, that the powers now given to him

by the Act in the way of interfering with the work of this body are taken away altogether and that he is permitted merely to address the Government where, as the latter's representative, he thinks that the resolutions are either ultra vires or obnoxious to orders issued by Government, we shall have all the self-government that is required in local administration.

The second misconception underlying the ideal referred to in the opening sentence of the previous paragraph is that it identifies the headship of the executive with the presidency of the board. The board is a large body and is bound to grow in numbers in course of time. This fact and other considerations which it is unnecessary to detail here point to the conclusion that its functions, as now, should be, in the main, deliberative. It is obviously undesirable to make the officer bound to obey its commands preside over its deliberations. The usefulness of such a body is measured by the efficiency of its control over its executive. If the Collector who runs its administration is permitted to preside over its meetings, it is bound to happen, as it has happened in fact, that he rules the board instead of his being ruled by it. Self-government requires that the executive should be open to the freest criticism and this cannot be achieved unless the office of president of the deliberative body is held by a person different from the chief executive officer. In other words, the president of a district board should be in the main what his name implies and the entire executive power, except such as may be reserved by the Act in favour of other persons or of committees, should be vested in the Collector of the district, who may be styled "Secretary to the district board" (or in some other suitable way) for this purpose. It seems desirable to make him continue as a member of the district board and to permit him to vote on resolutions, unlike the French Prefect who may only speak but cannot vote in the departmental *conseil general*. The reasons for this last variation, the Collector-Secretary's relations with the board and its president, the

constitution of boards, the holding of their meetings and the transaction of business thereat will be discussed in the next article. It is sufficient if the present one has attempted to make out a case for a change in the view point of those who seek the development of local self-government. That view point is not, on the one hand, the relief of a heavily worked district official by entrusting the actual administration of local affairs in a district to honorary agency; it is not, on the other hand, the transfer, from trained salaried officials to amateur non-officials holding office for a brief period, of functions of detailed administration which, in the very nature of the circumstances, they cannot efficiently discharge. It is rather the transaction of the large volume of administrative business in the most economical and efficient manner by a trained salaried agency and the attainment of real self-government by so constituting the district board and its president, that the executive agency, efficient otherwise, will carry out the wishes of the representatives on the district board of the people of the locality interested. Instead of district officers possessing controlling powers for the purpose of preventing local bodies from going astray—as contemplated by Lord Ripon—the object should be to make those officers realise that, in the matters contemplated by the local boards Act, they are the servants rather than the masters of these bodies.

Education and Training of Engineers.*

[By H. NOWROJI, B.E.; A.M.I.C.E., LATELY OFFICIATING
SANITARY ENGINEER TO GOVERNMENT, MADRAS.]

A COMMON complaint against locally trained engineers is that though well up in theory, they were deficient in practical knowledge. The imputation is not groundless, but the deficiency in practical knowledge is not

* From the written evidence tendered to the Public Works Department Re-organisation Committee.

due to any inherent inaptitude of the Indian. It is largely due to the inadequate system of education and training for engineers in India.

Some valuable suggestions for the improvement of the education and training for engineers may be gleaned from a report by a Committee appointed by the Institution of Civil Engineers in 1903 to consider and report on the subject. The Committee has emphasised the value and importance of practical training to the engineer. The Committee consider that a boy intended for the engineering profession should have a preparatory education best suited and most helpful to him in his studies for the profession at the Engineering College and such preparatory education should include geometrical and free-hand drawing and work in the nature of handicraft such as carpentry, turning and fitting; that Engineering Colleges should be fully equipped with workshops and laboratories for the demonstration of the scientific and technical instruction which students receive; that the college course should be followed by practical training under commercial conditions by a considerable period of apprenticeship in engineering offices, workshops and on works under execution. In this respect the training in the local College of Engineering is deficient.

It is not practicable to make provision in Indian schools for the preparatory course indicated above, owing to the small number of students entering the Engineering College.

In the recommendations I make for the better education and training of students and for improving the usefulness of the local college, the chief considerations have been that it was necessary to devote more time and attention to practical training, that it was undesirable to impart instruction in any branch of engineering for which the college was not fully equipped and that it was necessary that the curriculum be devised suitably to the nature of the work engineers have to do in India.

In the Madras College of Engineering there are two sections (1) Civil, (2) Mechanical. The course of instruction in Mechanical Engineering as a separate section should be abolished, as it has been of no utility to the students who have gone through it. Though this course was intro-

Importance of practical training.

Guiding considerations in proposals made here.

The section for training Mechanical Engineers should be abolished, as it is of no utility.

duced as far back as 1890, hardly any of those who have gone through it have devoted themselves to Mechanical Engineering after passing out of the college. As a matter of fact nearly all of those who have obtained diplomas in Mechanical Engineering are now engaged in Civil Engineering, and are doing identically the same work as the diplomaed Civil Engineers. To employ men in a capacity for which they were not trained is a most anomalous state of things, and detrimental alike to the interests of the Department which employs them and the men themselves who have been deluded into taking the course in Mechanical Engineering.

Students who enter the college now realise that the study of Mechanical Engineering is of no practical value to them and consequently only a few of the students take up the subject, as will be seen from the following statement of engineers who obtained diplomas from 1911 to 1914.

	1911	1912	1913	1914
Civil Engineers.	15	14	15	13
Mechanical Engineers	5	2	1	2

A large staff is employed at the college in teaching Mechanical Engineering. Under the circumstances stated above this is a useless expenditure of money.

The Mechanical Engineer is essentially a product of the workshop. Four years at the college and one year in a workshop is not the right way of training Mechanical Engineers. The college is not well equipped for the adequate training of Mechanical Engineers.

In the present condition of the industrial development of the country there is not much field for the employment of scientifically trained Mechanical Engineers. If ever a demand for such men arises, their education and training will have to be on lines altogether different from that followed at the college.

While on the subject of Mechanical Engineering I might say that some knowledge of it is useful even to the Civil Engineer, and the subject should be taught to this extent; but a separate independent course for training Mechanical Engineers is not justified.

The instruction and training at the college in Civil Engineering should be on broader lines than the present curriculum. More importance should be given to the study of the technic of engineering which to the ordinary engineer is more useful in practice, than a high proficiency in abstract sciences like mathematics, physics, chemistry, geology, &c. I do not underrate the value of such sciences to the engineer, but it is a mistake to devote much time to these subjects at the expense of more practical subjects, as is the tendency now-a-days.

The instruction at the college should be of a more varied character and of wider scope, so as to include all branches of civil engineering, problems in which the Indian engineer may have to deal with in his professional career, such as Municipal and Sanitary Engineering, Harbour and River Navigation, Railways, &c., in addition to the subjects now taught at the college. I have already referred to the need of some knowledge of Mechanical Engineering to the Civil Engineer. The students should be required to attend all these special courses which need not be very extensive.

In India conditions are not favourable for specialising and devoting oneself to one particular branch of engineering, except in very rare cases. The work of the Public Works Department Engineer is very varied in character. He may at one time be engaged on irrigation work, at another in charge of a workshop, next perhaps designing and executing drainage and water-works or investigating harbour and river navigation problems. The Civil Engineer in India must possess a general knowledge of all branches of engineering in which his work may lie.

I would lay much stress on the necessity of a special course of instruction in Municipal and Sanitary Engineering. It may any day devolve on a locally trained engineer, whether he is employed in the Public Works Department or in a Municipality or under a District Board or Railway Department, to design and execute works of a sanitary nature. There is much activity at the present day in the provision of works for the amelioration of health and sanitation. The value of the larger of such schemes designed by the Sanitary Engineer to Government, Madras, during 1915, amounted to Rs. 40 lakhs, and the value of minor works designed by the officers of local bodies totalled Rs. 20 lakhs.

Importance of Municipal and Sanitary Engineering to the Indian Engineer.

Method of practical training and the necessity for its commencement from the day the student enters the college.

The foundation of the practical training should be laid at the college. As regards the time relation between practical training and theoretical instruction, I am of opinion that the best arrangement will be to undertake both concurrently, the mornings being devoted to practical work and the afternoons to class work. After the student leaves the college he should devote one year exclusively to practical work as at present.

The practical instruction in Mechanical Engineering should commence with carpentry and fitting work, and then proceed to more important work in the college workshop. The practical knowledge of other branches of Civil Engineering should be acquired by spending two or three mornings a week on works under construction.

It may be urged that it was not possible to teach more subjects and do more practical work at the college than at present, and, that if more were attempted, the students would have a more diffused knowledge with less perfect attainments in individual subjects. Judging from my own experience at the college when the course was of a two years' duration, I think the subjects of study in a four years' course, with a well planned system of instruction and efficient teaching staff, can be increased without any detrimental results. The number and variety of subjects studied and the amount of practical knowledge

Students can undertake the practical and theoretical course here recommended without any undue physical or mental strain.

acquired by Indian Engineers who have studied in England in the course of 3 or 4 years is very extensive.

The lecturers and instructors at the college in engineering subjects should be engineers with considerable Indian experience. A young man who has just left an English University with a degree in Engineering, however high his credentials, is not the right sort to be a Professor in an Indian College of Engineering. A sufficiently large number of competent engineers, both European and Indian, who are compelled to retire under the age rule, could be found to take up professorial work at the college for a term of 5 years. Others may be willing to retire, even before they attained the age of 55, to take up an appointment in the college. By adopting this course the students will have the benefit of tuition from engineers of ripe experience, and the change of professors every five years would render instruction more up to date than it is with professors with small engineering experience which does not improve with age as long as they remain at the college.

Engineering Societies and Professional Literature.

There is one more suggestion I have to make, which is not irrelevant to the present inquiry. It is a matter of common observation and one of regret, that the vast knowledge and experience, which engineers in India possess does not benefit the younger generation of engineers. It runs as if it were to waste after the engineer retires. In European countries, there are societies for the promotion of the knowledge of engineering, at which papers on professional subjects are read and discussed thereby enabling the members to help one another to enlarge their knowledge and experience. The papers and the discussions which follow find a permanent record in the organs and publications of the societies, which become a valuable store-house of knowledge. To the rising generation of engineers this record and experience of the work of their elders is of countless value. I think Government might take steps to induce and encourage the formation of such societies in all the Provinces. The chief obstacle in the creation of such societies is a monetary one. It is suggested that Government

Experienced engineers of the Public Works Department should be employed on the teaching staff of the college.

Government help in establishing Engineering Societies.

should help the societies with money grants. Any measure which is calculated to improve the knowledge and experience of the engineer is in the interest of the Government.

Government should also encourage the publication of works on Indian engineering by publishing the first edition of an approved work at Government cost. The profit, if any, on the sale of the works should be given to the author, and he should be at liberty to print and publish the subsequent editions elsewhere, if he desires to do so.

Government aid to encourage publication of engineering literature.

The Bombay City Improvement Trust.

THE Report of the operations of the Bombay City Improvement Trust for 1915-16, which has been before us for some time, is of more than usual interest as this was the first complete year passed under war conditions. As to the effects of the war, we read that it "forced on the Trust the policy of the utmost possible retrenchment in capital expenditure but otherwise the war had little effect on the Trust's operations." On the other hand, the demand for the Trust's lands was greater than in any previous year except 1913-14, and the vacancies in acquired houses have far less than in the previous year.

The chief scheme occupied the Trust's attention during the year the Parel Road widening scheme. This formed the subject of an acute controversy between it and the Corporation. In a strongly worded protest the Corporation pointed out that the schemes were mainly for improving channels of communication, that they would absorb altogether all the available resources of the Trust and that large expenditure on street schemes was unjustifiable while slum improvement—the most crying need of the city—was being entirely neglected. Incidentally, it raised the question of the adequacy of the representation the corporation had on the Trust. The Government, however, approved and sanctioned the schemes.

Our readers are aware of the strong feeling aroused in Bombay in the preference shown by the Trust to street schemes. As the Corporation pointed out to the Government, the total cost of road improvement schemes undertaken by the Trust aggregate 592 lakhs while only 176 lakhs have been allotted for slum improvement.

It is therefore reassuring to find that, in the future, the treatment of congested areas will receive much greater attention than in the past. It is stated that the trust has now provided for nearly all the road items included in its programme and that a careful review of its finances has shown that it can undertake schemes for the improvement of the worst areas in the city and incur on them a net loss "expressed in terms of present value as on 1st April 1917 not exceeding 122 lakhs."

In addition to the Parel Road schemes, minor schemes were worked out during the year under report. Acquisition in connection with the spring mills scheme was completed; there was some progress in construction work on Police accommodation schemes; the lay-out of certain areas was revised; new accommodation was provided consisting of 442 tenements for families, 147 shops, etc.; and the number of house-plots disposed of in the year was a record. Some important general questions relating to slum improvement came under discussion. As we have pointed out over and over again in these columns, the main question for solution in all such schemes is that of finance. Legislation was undertaken to enable the municipality to close individual rooms in a house unfit for human habitation. One effect of this will be "to reduce the cost of the Trust Improvement Schemes and to enable them to improve a larger area with a given slum." This, of course, touches only the fringe of the subject, and the Trust had under consideration the question of taking power similar to that possessed by local authorities in England (a) to acquire obstructive parts of buildings without having to acquire the whole, and (b) to levy betterments on owners of

properties benefited by the removal of such obstructive buildings. As pointed out in the Report, the subject bristles with difficulties, but we trust that a satisfactory decision will soon be reached.

Co-operative housing on Trust Estates made no appreciable advance in the year. The Parsi Scheme on the Gamdevi Estate had to be held in abeyance on account of financial difficulties resulting from the War. The Saraswath Society about which we have written in the *Gazette*, extended its activities. We read : " The first three houses each containing six tenements were completed in December 1915 and the success of the experiment has resulted in the enlargement of the Society who have now doubled their holding on the Trusts Estate and are erecting two more buildings containing twenty four three-room tenements for their tenement members."

We hope that Madras will soon follow the excellent example inaugurated in Bombay.

As a result of the operations during the seventeen years of its existence, the Trust " finds itself in possession of estates aggregating one-tenth of the total area of the Island and accommodating one-tenth of the total population with a sanctioned programme involving the expenditure of 903 lakhs on the city (587 past and 316 future) and resources sufficient to justify them in undertaking new schemes costing 122 lakhs net, over and above the two schemes for widening the Parel Road to 120' which were sanctioned during the year." This is a satisfactory record and now that the longstanding controversy between the Corporation and the Trust on the question of slum improvement will become a thing of the past, we have no doubt that the operations of the Trust will prove increasingly useful to the City in coming years.

The Social Welfare Conference.

THERE was a small but unique Conference held in the City of Madras at the close of the last month. It was called the Social Welfare Conference. It was formally opened on the 26th February with an inaugural address by the Hon. Sir Alexander Cardew. It lasted for about a week, the mornings being spent in actual inspection of some of the worst quarters of the City and in trying to understand the results and methods of social amelioration adopted there by the Madras Social Service League, the evenings being devoted to deliberations on one or other of the main branches of work in which social workers are generally interested.

The Conference was unique in two respects. In the first place, it was composed of hardened—what are called bureaucratic—officials of the Local Government as well as of Missionaries, Secretaries of Y.M.C.A. Branches in the Presidency and others who have made a study of social welfare work. This commingling of the forces of authority and sympathy is noteworthy and it was especially so in the case of the large contingent of officers of the Madras Co-operative Societies Department. The second noticeable point is the common aim which animated the conference. It was not simply or purely social work. There was the zeal of the Missionary tangibly felt there, but there was also the keen hard criticism of the trained official. All these various powers were brought together to consider how best the condition of the masses of the people in this Presidency may be improved in all directions. As Mrs. Whitehead pithily put it, the aim of the conference was to find a way from Nallancheri (a Paracheri in the city of Madras) to Home Rule. In other words, how are we to instil a sense of self-respect and a spirit of self-reliance in the large mass of ignorant people who form the bulk of the population of this Presidency, so that eventually, and as soon as may be, they may be enabled to take an equal

part in the future development and governing of their country. The aim, then, was neither purely philanthropic nor ethical nor religious nor prominently political, but a combination of all these. The members of the Conference evidently felt that human nature cannot be dealt with in watertight compartments, but that all forms of healthy human activity should be equally welcomed and concentrated in a given area by one co-ordinating body.

The evening deliberations resulted in a series of formal resolutions which were passed at the final sitting. They ranged over several topics, from co-operative societies and village panchayats to the best method of expanding primary education and bringing medical aid down to the very doors of the people. The members visited the Madras Tuberculosis Institute and received fresh inspiration and knowledge as to the possibilities of future work from the enthusiastic and talented head of that Institute, Dr. P. S. Chandrasekhar. They spent a morning in going round the Maternity Hospital at Madras and heard what the authorities of that institution were doing to train and send out competent midwives and nurses into the districts. Another day was devoted to the inspection of the kindergarten and manual training classes of the Teachers' College at Saidapet. By far the most definite resolution arrived at in the conference has reference to the housing problem in the districts, especially as it affects the panchama classes. The resolution runs as follows :—

That the housing problem requires to be urgently taken up in rural areas as well as in towns.

That in villages where building sites are available it is necessary to set apart house sites for the special benefit of the depressed classes who are not able to buy house sites ; and seeing that at present it is often found difficult to grant house sites to Panchamas owing to the opposition of the other communities and other causes, the Government should take such steps as may be necessary to set apart house sites to meet the present and future needs of the depressed classes.

The Madras Local and Municipal Conference.

IN the opening number of this Journal, we wrote: "The object of the *Local Self-Government Gazette* is to take some part in this process of equipping the citizen for the task of local self-government. And this it seeks to do, among other means,.....by organising Associations and Conferences of heads of local bodies." We are glad that a very successful session of a Conference of the members of local boards and municipal councils in South India was held on the 17th and 18th March. The Conference was composed of nearly 200 non-official members of local bodies, and the papers read and discussed at the Conference dealt with a large variety of local and municipal problems, and they were eminently practical. His Excellency the Governor of Madras opened the Conference with an interesting address in which he emphasised the need for a wide and intelligent interest on the part of the people in the working of local bodies. One important resolution adopted by the Conference related to the formation of Local Boards and Municipal Association to carry on sustained work during the intervals of the periodical Conferences. We reproduce below His Excellency's address:—

I thank you heartily for the kind manner in which you have welcomed me here to-day and desire to assure you that it is a great pleasure to me to have been able to accept the invitation conveyed to me by my friend and colleague on the Legislative Council, Mr. Ramachandra Rao, to open this Conference of those engaged in unpaid and voluntary labour in the field of local self-government. Among his other activities Mr. Ramachandra Rao has given much time and thought to municipal work, as Ellore knows, and indeed we all know, and I feel sure that much of the prospective success of this gathering here to-day is due to his endeavours. I hope sincerely that the opportunity which it will afford of exchanging views and bringing into the common fund experience of a wide range of problem acquired under varying conditions in different parts of the Presidency may justify expectations. And here gentlemen you will perhaps allow

me to congratulate the organisers of this Conference on the wide and attractive variety of subjects which form the agenda paper which has, I see, been provided for discussion.

There are questions to which Mr. Ramachandra Rao has referred, connected with the machinery of local administration, for those whose tastes lie in discussions of that nature; there are also many questions as to the functions which the machinery has to perform, from the running of an elementary school to the abating of the dust nuisance, for those whose interests are more in that direction. I do not propose to discuss any of these questions or even initiate discussion. Still less do I propose to imitate the chairman of a debating society who used under pretence of initiating discussion to sum up impartially on pros and cons of his own fabrication, and then leave the indignant debaters on both sides to repudiate conclusions deduced from arguments which they had never employed and diametrically opposed to the convictions of which they were the appointed champions. But although I cannot offer my services in this manner, I rejoice at the wealth of material which your programme reveals, for two reasons. In the first place, the secret of successful local government lies not so much in the machinery as in a widespread and intelligent interest in its successful working on the part of the people for whose benefit it is devised. The more they realise its importance, the wide range of interests with which it is concerned and the intimate manner in which their most vital needs are bound up with it, the more will they scrutinise with a jealous eye the claims of those who ask to be entrusted with its working; and the more they will supply that stimulus and encouragement which intelligent public opinion alone can give. Again it is often argued that the petty nature of the issues with which it is concerned prevents many men of position and capacity from interesting themselves in local government. In support of this, attention is called to the proceedings of our municipal councils and local boards—Rs. 500 for a well, Rs. 200 for repairs to the village school, Rs. 100 for filling up a pit and so on. How dull, they say, and how petty. To those who can only think in lakhs or declaim on abstract themes it may, I grant, be very uninteresting, but the reflecting mind will realise I think that these brief and dull records conceal real and living issues, the constant fight against ignorance, against disease and dirt, in which local bodies are from year to year playing

a more important part and the campaign to bring within reach of all a higher standard of life and labour. In these efforts local bodies are essential and most powerful agents of good influence.

Finally, let me commend service upon local authorities to all classes as a school of administrative experience, and what is even more important, as providing opportunities for disinterested public service. In the extension and improvement of education, in the development of medical aid for man and beast, in the provision of pure water supplies, in the spread of knowledge regarding the conditions of health and disease, in the maintenance of markets, of avenue trees, of roads and bridges and other communications, local authorities are in intimate touch with the conditions of the daily life of all classes of the population. As was once pointed out, there are some people whose philanthropy may appropriately be described as telescopic philanthropy. Their eye is always at the telescope, examining the far distance, with the result that they do not see what is under their noses and at their feet, and are blind to their responsibilities to their neighbours. There is telescopic philanthropy and there is telescopic charity.

Now here, in the work of local government, the telescope is not required. The field of our labours is at our feet: large; indeed it is limitless, for each achievement opens before us vistas of a higher standard to be reached. And in any country there is no more valuable and in the true sense patriotic service than that which is given by those who, putting aside their own interests and advantage, give their time to work upon local authorities. In all such work there are delays and disappointments, hopes and ideals are not always realised, but there is always a priceless reward in the often unexpressed gratitude of those whose lot has been lightened, has been relieved from suffering or hardship, or protected from dangers, by such disinterested labours. Such work is worthy of the best men that can be found, and I trust that as time goes on this will be more and more recognised.

To all those who are doubters as well as to all those who are interested, I would recommend a study of the programme of this Conference and of its discussions. They will then, I think, realise that the varied interests with which you are concerned are worthy of their attention and of the devotion and zeal which has led so many of you to assemble in this Conference to consider how they may be advanced.

Gentlemen, I will now leave you to your deliberations and in again thanking you for your kindness I desire to express my sincere hope that you may find this Conference suggestive and helpful to you in the valuable work in which you are privileged to take a part and for your services, for which the Government are most grateful.

Government Orders and Notifications.

[Madras.]

THE Government have for some time recognised that the provision for medical relief in this Presidency is inadequate. The total number of hospitals and dispensaries maintained for the relief of the sick was 697 on the 31st December 1915, which gives one hospital or dispensary for 60,000 of the population, and there is only one such institution for every six hundred square miles. Many villages are far distant from any hospital or dispensary, while the number of private practitioners is small and in rural areas there are practically none. An increase in the number of dispensaries or hospitals is very desirable, but this besides being expensive is a very slow process, because it involves the provision of buildings, either rented or built, and long delay occurs in the selection of sites and other preliminary processes. The increase in the number of public medical institutions during the quinquennium ending with 1915 was only at the rate of seven per annum on an average, a number entirely insufficient even to keep pace with the normal growth of the population. The cost of opening a dispensary and providing the necessary equipment in instruments and apparatus of all kinds is so heavy that district boards often manifest unwillingness to incur the expenditure, though the Government in G.O. No. 397 L., dated 9th March 1915, have undertaken to bear half the cost of the maintenance of all new hospitals and dispensaries.

2. In these circumstances, some more rapid steps to increase the provision of medical relief are necessary. One plan which is about to be tried is the provision of itinerating

dispensaries and in G. O. No. '141 (Medical) dated 30th November 1916, sanction has been accorded to the establishment of three travelling dispensaries in three selected districts in the Presidency. This system is, however, in an experimental stage and can only be extended slowly as experience is gained of its working, and some time must elapse before similar institutions can be started for the benefit of other rural areas.

3. In the meantime His Excellency the Governor in Council considers that further measures should be adopted to carry medical relief as quickly as possible to the doors of the villagers and that to secure this end the best course would be to duplicate the staff of medical officers in a certain number of existing hospitals or dispensaries and to require each of the medical officers employed in these institutions to tour alternately for a period of 15 days in the month through villages within a definite radius. The number of villages attached to each circle hospital or dispensary should not be too large and the circle should be so fixed that each village within it can be easily visited at regular intervals by the medical officers. The sub-assistant surgeons on tour will be equipped with medicine chests and will attend to all urgent cases or minor ailments which may be conveniently treated on the spot, while those requiring operation and graver cases can be sent to the circle hospitals for treatment. These peripatetic sub-assistant surgeons will also be able to detect glaring sanitary defects in villages and perhaps persuade the villagers to remove them, and would have opportunities of instructing the villagers on matters relating to public health and gradually spreading among them a knowledge of the principles of hygiene by delivering vernacular addresses in villages on matters affecting health, the proper treatment of maternity, the prevention of infant mortality, etc

4. The success of the scheme outlined above would depend largely upon the effective supervision of the District Medical and Sanitary Officers and the Government must look to these officers to take an active interest in the experiment.

It will also be important to see that the sub-assistant surgeons deputed for the work are carefully selected men and that they should have a thorough knowledge of the vernacular of the district to which they are posted.

5. The question whether the sub-assistant surgeons employed in this work should be allowed while on tour to take fees from patients who can afford to pay is a difficult one and the remarks of the Surgeon-General are invited on this point. He is also requested to submit a detailed estimate of the cost of duplicating the staff of a dispensary or hospital on the lines indicated above, making due provision therein for such equipment as may be necessary.

6. The cost of duplicating the staff in an existing dispensary will obviously be much less than that involved in starting a new dispensary and it is hoped therefore that local bodies will be in a position to adopt this scheme. The Government will be prepared, so far as funds permit, to bear from Provincial funds one-half of the cost of duplicating the staff in the dispensaries selected for the experiment.

7. The scheme outlined above is now commended to all district boards for consideration and report whether they are prepared to give it a trial in any of their medical institutions. If they are prepared to try the experiment, they should specify the institutions selected and the villages which it is proposed to attach to each of them. His Excellency the Governor in Council hopes that these proposals for attempting to bring medical relief nearer to the people in rural tracts will secure the approval and support of district boards and that they will undertake to carry the scheme out in a substantial number of cases. It will not be possible for Provincial funds to undertake to assist in more than a limited number of cases each year nor will the available number of sub-assistant surgeons be sufficient for any very rapid extension of the scheme, but a trial of the suggested arrangement should be made, if possible, in every district. [G. O. No. 68 (Medical), dated 14th February, 1917].

[Mysore.]

With a view to provide increased facilities for medical aid to people in rural parts, Government consider that Medical and Sanitary Officers in districts, travelling on duty with medicine chests, may, with advantage, arrange their tours as far as possible so as to be able to render medical aid, where necessary, to the people of villages along their line of march, previous intimation being given to the patels of such villages, for communication to the people. The Senior Surgeon is requested to issue suitable instructions to the District Medical and the District Sanitary Officers in the matter and take needful action to provide medicine chests to such of them as have not already been furnished with the same. [G. O. No. 4800-12-Med. 76-16-2, dated 27th January, 1917.]

Legislative Intelligence.

[United Provinces.]**IMPROVEMENT OF RURAL SANITATION.**

The Hon'ble Mr. Chintamani asked :—

(a) Will Government be pleased to ask the Sanitary Commissioner to include in his annual report a section giving full information regarding the measures adopted during the year for the improvement of rural sanitation?

(b) Will Government be pleased to increase or to ask the sanitary board and district boards to increase the allotment for rural sanitation?

(c) Will Government be pleased to ask the Sanitary Commissioner to append to his monthly statements of mortality published in the Gazette explanatory notes stating the causes of abnormal mortality from specific diseases in a particular district or municipal area, and the remedial and preventive measures that are adopted in connection therewith?

Government replied :—

(a) Apart from such measures as those designed to prevent malaria or cholera, which are described in the annual report, the sanitary measures undertaken in rural areas consist generally of

improvements of a minor character, such as the protection of wells, which do not lend themselves to detailed description. The Sanitary Commissioner will, however, be asked to consider whether the subject cannot be more fully treated.

(b) The Government are not prepared to interfere with the discretion of the Sanitary Board in the distribution of the funds at its disposal, nor is it possible for the Government in present financial conditions to increase its own allotments. The revised contracts with district boards provide for a considerable increase in the expenditure on rural sanitation. The attention of the boards, however, will be drawn to the desirability of providing as much money for the purposes as possible.

(c) The Government do not consider that it would be practicable to act on the suggestion. The necessary information could not be procured in time. The matters referred to are dealt with in a general way in the annual report.

TRAVELLING DISPENSARIES.

The Hon'ble Mr. Chintamani asked :—

Have district boards any control over the travelling dispensaries towards the cost of which they are required to contribute? What is the total average cost per annum of each such institution and how much of it is met from the provincial revenues and how much from the funds of the district boards? If the district boards cannot be given some measure of control, will Government be pleased to relieve them of the duty of contributing towards their maintenance?

Government replied :—

Travelling dispensaries are in administrative charge of Civil Surgeons who are the medical and sanitary advisers of district boards. Their average annual cost is Rs. 2,000 and of this district boards contribute one half on condition that the dispensary is permanently attached to the district.

All district boards were consulted when these arrangements were instituted and accepted them as satisfactory. The Local Government therefore sees no reason for making any change in the arrangements.

Practical Points.

1. *Damage caused by raising the level of road—Liability of Road Authority.*

Question.

A local authority raises the level of the road and storm water thereby runs on the adjoining property and causes damage. Is the local authority liable?

Answer.

If by the raising of the level of the road above the normal, the local authority diverted the drainage of the road on to the neighbouring lands, it would commit an act of misfeasance and would be liable in damages. [See *Baldwins (Ld.) v. Halifax Corporation*, 80 J. P. 359.]

Recent Publications.

CONSTRUCTION, EQUIPMENT AND MANAGEMENT OF A GENERAL HOSPITAL. By D. J. Mackintosh, M.V.O., M.B., LL.D., F.R.S.E. Edinburgh and London: W. Hodge & Co. Price 15s. net.

A MANUAL OF FIRE PREVENTION AND FIRE PROTECTION FOR HOSPITALS. By Otto R. Eichel. New York: J. Wiley & Son, London. Chapman & Hall. Price 4s. 6d. net.

MUNICIPAL ENGINEERING PRACTICE. PHOTOGRAPHS, CHARTS, TABLES AND DIAGRAMS. By A. Prescott Fohwell, Editor of *Municipal Journal*. Price \$3.50.

WATER WORKS HAND-BOOK. By A. D. Flinn, R. S. Weston and C. L. Bogert. Photographs, Charts, Diagrams and Statistical table. Price \$6.



The Local Self-Government Gazette.

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APRIL

[1917

Local and Municipal Administration (1915-16).

[Bihar and Orissa.]

THE number of District and Local Boards in Bihar and Orissa remained unchanged during the year 1915-16. The Government of this Province have obviously been encouraging the formation of new Union Committees and the result has been that twelve new Unions were started during the year. His Honour the Lieutenant Governor in Council urges on the need of establishing more Unions at all important centres where conditions are favourable. He points out that while the Local-Self Government Act empowers Union Committees to levy taxes, it does not render such taxation imperative, and that much of the opposition to the formation of a Union is due to a fear of increased taxation. If any advance is to be made in the cause of Local Self-Government, such taxation will have to be fixed ; but there is no point in the imposition of taxes in the face of strong local opposition.

In regard to the constitution of District Boards, it is a matter for satisfaction that instructions have been issued that in future officials should not accept the post of Vice-Chairmen. It is also noticeable that the change in the constitution of the three local boards of the Cuttack District coupled with the 33% in the increase in their resources is reported to have added materially to their efficiency. Another healthy feature of the working of the Local Boards in this Province is that they are being gradually entrusted with the supervision of sanitation, construction of school buildings, management of dispensaries, control of primary education and the maintenance

of roads within their respective sub-divisions. The working of the Union Committees was chiefly confined to the improvement of water supply, sanitation, conservancy arrangements and the upkeep of pounds.

The total receipts of the District Boards from all sources approximated 83 lakhs while the expenditure exceeded 92 lakhs. Nearly 60 per cent. of this outlay was in Civil Public Works, while irrigation contributed about 17 per cent. There was an increase of 134 in the number of primary schools and the Lieutenant-Governor notes with satisfaction that no Board failed to obtain the minimum fixed by Government for expenditure on education.

The extension of medical relief to the sick and the suffering showed also a satisfactory progress, the number of dispensaries having risen from 128 to 141. A travelling dispensary in Cuttack is reported to be doing useful work. Under water-supply it will be interesting to note that the Government have laid down a minimum standard of expenditure, viz., Rs. 5,000 per annum for improvement of rural water-supply, and that all the districts except two reached this minimum.

In conclusion the Lieut. Governor in Council observes with satisfaction that the activities of the Boards during the year have on the whole been well sustained and that while owing to the exigencies of Provincial finance there could be no increase in the grants for educational purposes placed by Government, the District Boards increased their expenditure on education by nearly $1\frac{3}{4}$ lakhs. In regard to the development of Local Boards, His Honour in Council while regretting that the activities of some of the Boards were discouraging says that the example of Cuttack shows that if the District officers will take pains to reconstitute the Boards on lines which will secure a full representation both of areas and of classes and to stimulate the interest of the members a real impetus will be given to local administration. His Honour in Council was also prepared to view with favour any proposal to increase the powers of those Local Boards which have

shown themselves fit to enjoy further responsibility. And finally, he lays special emphasis upon the value of co-operation between the official and the non-official members of the District and Local Boards. It is needless to add that the non-official members should fully acquaint themselves with, and represent, the needs of their localities and thereby harmoniously co-operate with the executive head for the time being.

[Madras.]

The general reviews of the Administration of Local Boards and Union Panchayats and of the District Municipalities of this Presidency by the Madras Government have been published. The reviews are somewhat belated having been published about a year after the close of the period to which they relate. The Government observe that the administration of the Local Boards Act V of 1884 continued to be satisfactory on the whole during the year under review. There were 25 District Boards, with an actual strength of 773 members, of whom 124 were ex-officio members, 292 nominated by Government and the remainder being elected by the Taluk Boards. In accordance with the general policy adopted by the Government, 15 District Boards had nominated non-official Vice-Presidents. There were 96 Taluk Boards which continued to work, generally speaking, satisfactorily. Three Taluk Boards had the privilege of electing their own Presidents, while 19 had nominated non-official Presidents. We have already referred to the orders which were issued during the year under review on the recommendations of the Royal Commission on Decentralisation with regard to the constitution of Panchayats in villages for the administration of Local affairs.

During the year under review a special cess for the construction of Railways was collected at the rate of 3 pies in the rupee in no less than 14 Districts. The net earnings in the Railway lines owned by 4 District Boards amounted to Rs. 70,671 and it is regrettable that owing to the war, Railways could not be further extended. The Local Boards had spent during the year for education Rs. 10,24,559 or 14·3% of their

total ordinary income. During the year under review, the Government decided that in future it shall bear half the cost of hospitals and dispensaries newly opened; and 4 institutions received the benefit of this arrangement during the year. The work of itinerating dispensaries for the treatment of Malaria has not been satisfactory, but a certain amount of useful work has been done and the experiment is being continued. Efficient provision is being made for the supervision of sanitation and vaccination by Assistant Surgeons being employed as sanitary assistants to the District Medical and Sanitary Officers. The scheme initiated by the Government during the previous year for utilising rural co-operative societies for the purpose of improving sanitation in big non-union villages has been found during this year to have worked satisfactorily and the Government have decided to extend the system further. The question of the relations of Taluk Boards to the Local Fund Engineering establishments has been engaging the attention of Government and the Government is in consultation with the Local Boards and their presidents on the question of entrusting the Local Boards with executive control over all the Local Fund Engineering works within the Taluk Board areas.

The administration of the District Municipalities, the Government observe, continued to be satisfactory on the whole during the year under review. There were 67 Municipalities at work on 31-3-1916 or 4 more than in the previous year. There were 1,019 Municipal councillors on the 31st March 1916, of whom 86 were ex-officio councillors, 431 nominated by Government and 502 elected by rate-payers. The total electorate represented 2·5% of the aggregate municipal population in the towns in which the elective system was in force. Out of 227 vacancies, only 137 seats were contested and in connection with the contested elections, only 63·4% of the registered voters attended the poll.

The number of meetings which proved abortive or had to be adjourned for want of a quorum were 91 during the year

and the average percentage of councillors present at each meeting was 59·6 of the total strength. This is unsatisfactory.

The incidence of Municipal taxation per head of the population was Rs. 1-10-11 during the year under review against Rs. 1-9-8 in the previous year. The aggregate receipts of the year amounted to Rs. 79,81,969 and the expenditure amounted to Rs. 85,44,627 including the sums spent by Government on water-supply, drainage and other schemes with the aid of Provincial Grants. It is satisfactory to note that no municipal town was without at least one hospital or a dispensary, and that the employment of female practitioners is being extended year after year. Though the compulsory provisions of the law with regard to vaccination continued to be in force in all municipal areas, the ratio of successful operations per mille of the total population declined from 50·7 to 50·3 and this, as the Government observe, cannot be considered at all satisfactory.

Bills to amend the Madras District Municipalities Act, the Madras Local Boards Act, and the Food and Drugs Bill and the Town-planning Bill have been drafted and are pending introduction. Town planning received considerable attention during the year as a result of the visits of Professor Geddes and Mr. Lanchester; and several municipalities are preparing important schemes.

Village Communications.*

[BY K. KRISHNAN NAYAR, DISTRICT BOARD ENGINEER,
GODAVARI.]

VILLAGE communications may be broadly divided into cart-tracks and foot-paths. Of cart-tracks, we certainly have more than we had half a century ago. Carts are even now unknown in many villages, and in South Canara

* A paper read at the Madras Local and Municipal Conference (1917).

came across many villagers who had seen a railway locomotive engine but not yet a country cart. What is true of villages or even a group of villages to-day could have been said of districts 70 years ago. To quote the very words of a District Gazetteer: "At the close of 1849, the Collector was requested to report on the roads of the district. Mistaking, as well he might, the drift of the requisition, he submitted a carefully compiled statement of the roads available for shipping. On being set right, he explained that there was nothing to be said about the other kind of roads, there being not a mile of road in the district along which you can drive a gig or a pig."

2. With the general increase in the length of roads, village cart-tracks have also multiplied. Yet, even here, one can discern the marked tendency of the times to let village communities drift into a position of helplessness. Many of the tracks were made and maintained by the villagers themselves but once a local board stepped in to do any work on any such track, the chances of their doing anything more for themselves were for ever gone.

3. There is a general feeling that the village tracks selected by local boards for maintenance are not always the most important. The members know so little of tracks other than those in which they are personally interested. Very rarely is a correct decision come to by discussion at a Board meeting. The selection of the roads is mostly in the hands of the President whose knowledge of village roads is also limited. Sometimes a road is taken up, simply because an influential man expounded it. Sometimes a useful road is not taken up because the agitation for it is believed to be due to another influential man. For maintaining existing roads, no credit is given; for opening new ones too much credit is given and taken. Roads taken up in a hurry have to be abandoned at leisure. The result is that the country is full of abandoned roads giving rise to an impression that in the "good old times" there were many roads than there are at the present day.

4. It is when we turn to village foot-paths that we find the "rustic moralist" has far greater reasons to complain that the old order has changed yielding place to *nothing*. The owner of every piece of land once considered it his sacred duty to set apart a portion of his land for foot-paths. His one idea now is to take back little by little what his fore-runners gave to the public. Sometimes he can save some length of fencing if a foot-path is altogether blocked. "Shall I be justified in doing it?" is not the question he asks himself, but "will the people put up with it?" People put up with everything rather than unite together for advancing a common good. In paddy fields large bunds used to be allowed for foot-paths; now they are narrowed so much that those who have to negotiate them do not admire the feats of the rope-dancer. Separating two compounds there are spaces left which serve the double purpose of a lane and a drain. Now these are dug up for improving or extending the compound and deep undrained pits are left unattended to.

5. Villagers themselves put up very cheap bridges over all troublesome streams. The particular tree that was used to span the stream often gave the name to the village that sprang round a place, where the stream had to be crossed. When intermediate supports were found to be washed away, the villagers placed a single log over the stream, probably getting the log free and the temple elephant to drag it. (*Ottapalam* is considered by some to be so derived.) When the bridge had to be put up year by year, it was not always the richest or the most influential man of the village that managed it. I well remember an old man of very little means and not useful to the community in any other way having taken upon himself for more than forty years to go about from place to place collecting materials and organising free labour for putting up the bridge. Of course he was possessed by the idea that by this work of public utility he was earning *punyam*. The inroads of modern ideas have nearly exploded all such beliefs and people look to the local boards for everything and ask what is being done

with the cess collected from their village. Where formerly the villagers thus added to the materials of the bridge, they take to the process of subtraction as soon as a joint gets loose in bridges maintained by the local boards. The bridges put up by the villagers were sometimes a trial to nervous people. A rich and influential villager induces a "sympathetic" President to put up a better structure that lasts for six or seven years and then no more of the old or new kind of bridge over the stream.

6. These, in the main, are the ideas I have gathered from my experience in many districts. It is not a pleasing picture I have drawn. But is there no silver lining in the cloud? At any rate, I must follow the fashion of the day by some attempt to outline "constructive proposals."

7. It is quite common among the people of this country to talk of the P. W. D., whether under the Government or a Local Board, as the Public Waste Department. Many of them can assure themselves and others that the whole of the allotment is eaten away. The more sober of them are content with striking a golden mean and would put that amount at 50 per cent. This latter statement comes very near the truth though in a manner not thought of by them. 20 per cent. goes for the pay of the superior establishment; 10 or 15 per cent. goes as profit to the contractor—perhaps more, when subletting is of the third or fourth dimension. I once came across one described to me as a sub-sub-sub-contractor. Petty supervision has to be separately provided. In buying materials, public departments do not care or cannot afford to wait for a cheap market. From the wholesale dealer to a boy cooly, every one places a higher value on himself or his wares, when he knows a public body has to pay. Then again in the attempt to secure the best materials by rejecting those which would satisfy the ordinary requirements of private individuals, we automatically raise the price, without, I fear, a proportionate improvement in the quality. Last but not least, the hard and fast rules about the methods of execution and the

complicated system of accounts unavoidable when one man spends another's money prevents the best return being had for the money without retarding the activities of the evil doer. For these and many similar reasons public departments will never be able to show the same results for the money spent as those on the spot and interested in the works, can do.

8. It is true villagers themselves often come forward to take these contracts but too often they want the same rates as the professional contractor without having the experience of the latter regarding the nature of the work or the method of execution. It is then seen that the local men were acting in the belief that only *waste* and not *work* was contemplated and that their only idea was to keep the "huge profits" they expected, within the village.

9. It is much that villagers can do for themselves. If they can convince the authorities that they can accomplish twice what the P. W. D. does, I feel sure, grants adequate to their needs will be forthcoming. A stitch in time saves nine and by a small drain cut here and a little bund put there, much damage can be averted, which otherwise will cost a great deal to repair. While now high prices are put on materials for the simple reason that the owner can see no benefit for himself or his village by reducing his demands, he will be quite willing or will be induced to reduce the price, perhaps even to give *gratis*, when he can see for himself that the direct result of his action is that more beneficial work is done in his own village.

10. It may well be asked at this stage where the grants are to come from. We hear so much that elementary education ought to be cheap if not free and that secondary education should be self-supporting or nearly so, that, even though analogy is no argument, I would venture to suggest that our main roads and large bridges should be self-supporting. I know many are opposed to tolls but I for one cannot see why a person who uses and helps to destroy a road should not pay

fully for the advantage he enjoys. He should be thankful that the road is there at all ready for his use for the small toll he pays. Why should communications be subsidised by indirect taxes? On minor roads where tolls would have to be heavy to secure the full cost of maintenance, there is some justification for indirect taxes. Such roads should have very small allotments only. If once the principle of making main roads self-supporting is accepted, the income from tolls will grow with the growth of the traffic and a proportionate increase in the allotments can be made and an automatic adjustment of it arrived at.

11. The construction of a bridge is too often urged by many who will be benefited by it, simply because, it will cost them nothing. If a bridge is worth having, it is worth paying for. I well remember how some persons said that people would pay double the usual toll and still consider a bridge a great boon. When in due course the bridge was constructed, I realised that the memory of "some persons" for "some things" was very short. They threatened a "rupture of all diplomatic relations" with those who advocated the levying of a toll and brought about as graceful a climb down as possible in the circumstances. Far from contributing anything for the bridge, they saved the expense in addition to the inconvenience of a ferry service. Hence the observation that "the income of the local board rises as the bridges fall and falls as the bridges rise". In my opinion, all receipts from a ferry should be ear-marked for constructing a bridge and that a bridge-toll should be levied at least till the cost of the bridge is made good.

12. In these and other ways, funds now spent on main roads should be released and made available for minor roads and village communications. A grant proportionate to the land cess of a village should be made available for expenditure through the villagers but no such grant should be made till it is clearly shown that they can maintain two miles of tracks where only one could be, by the P.W.D. When this becomes

absolutely certain and not merely a matter of favour or opinion and when agencies are secured that are interested in the works entrusted to them and will add to, rather than take something for themselves, from the funds placed at their disposal, the much criticised "a system" will be found to be *the* system most suited for the disbursement of the grants. To secure such agencies should be the aim of all interested in the advancement of village communications. All violent hurry should be avoided. The progress should be gradual, may even be slow, but should be sure.

A few suggestions regarding the amendment of the Madras Local Boards Act, 1884.

[BY T. V. RANGACHARIAR, MUNICIPAL CHAIRMAN, CHITTOOR,
AND EX-PRESIDENT, TALUK BOARD, CHITTOOR.]

I.

I MAY best deal with the subject under three main heads,
viz., suggestions relating to

- (a) i. The Constitution of the Boards,
- ii. Mode of transacting business,
- (b) The finance of the Boards, and
- (c) Certain miscellaneous and general points.

(a) 1. THE CONSTITUTION OF THE BOARDS

2. The sections of the Act dealing with this point may be grouped under the following sub-heads :

- (1) The Presidents of Local Boards,
- (2) The Vice-Presidents of Local Boards,
- (3) The members of the District Boards, and
- (4) The members of the Taluk Boards.

3. Taking the case of the Presidents of the District Boards, the privilege of electing a President by members from among their own number is as old as the Act itself but the privilege

is subject to this restriction that it could be exercised only after a notification by the Governor in Council permitting it. Section 9 has further been amended by Act VI of 1900 empowering the Governor in Council to appoint by nomination one of the members of the Board as its President. Not a single appointment either by election or by nomination has yet been made. One cannot help observing that the Government is extremely, if not unreasonably, slow in making a move in this direction. The same was the case with the Presidents of Taluk Boards and when the system of Non-official Presidents was introduced in 1912 it was not without many misgivings as to its success. Time and trial have shown that the official misgivings were unfounded. May we not now reasonably say that the present misgivings as to the success of a Non-official President of the District Board will prove to be equally unfounded? I think the Government has waited sufficiently long—33 years—and it is high time that they should make a move and start an experiment in some selected District or Districts, whether by nomination or by election.

In the case of the Presidents of Taluk Boards, the experiments already made justify a more liberal move, particularly in the direction of elective Presidents. One is unable to understand why the Government should be chary in conferring upon Taluk Boards the privilege of electing their Presidents. When they started the experiment of Non-official Presidents in 1912, they started with elected Presidents in three places and though this experiment has been pronounced to be a success, the further extensions of the privilege have all been by nomination only. One cannot help resisting the conclusion that the Government do not appear to have much faith in the electorate that they will choose the right man for the place. There appears to be no justification for this attitude.

I do not see how matters could be improved by any amendments of sections 9 and 15. Amendments which have the effect of making the appointments of Non-official Presidents all round obligatory upon Government will be unwork-

able and even inexpedient. The matter is eminently one for decision in each individual case. Perhaps these sections could be so altered as to make it obligatory upon the Governor in Council to grant the privilege in any particular case if a resolution to that effect is passed by the Local Legislative Council.

4. VICE-PRESIDENTS OF THE LOCAL BOARDS.—I am of opinion that Vice-Presidents of Local Boards whether appointed by nomination or by election should all of them be non-officials. In the case of the District Boards an attempt has been made to appoint non-officials as Vice-Presidents in several District Boards and complaint has been heard that in some places non-officials in the strict sense of the term have not been appointed. In the case of Taluk Boards the privilege of electing their Vice-Presidents has been withdrawn from such of the Taluk Boards as have been given the privilege of electing their Presidents, whereas the privilege is retained in the case of the Taluk Boards wherein Non-official Presidents are appointed by nomination. The reason for this difference in procedure is not easy to see. The elected Non-official Presidents have been put to great inconvenience as they could not get that amount of relief which they have a right to expect from the official Vice-Presidents as the latter often happen to be heavily worked officials who are bound to be on tour for nearly three weeks a month.

I am distinctly of opinion that the Vice-Presidents whether of District Boards or Taluk Boards should be non-officials elected by the Boards themselves and section 20 of the Act should be amended accordingly, and the portion relating to nomination of Vice-Presidents should be deleted. In any case I would suggest that they should at any rate be non-officials and section 20 should be suitably amended.

5. There is one other matter of importance in connection with the Vice-Presidents which requires attention. It is within the knowledge of the Government, I think, that there is no uniformity of practice in the Presidency as regards the

nature of the powers delegated to the Vice-Presidents. Nor is there anything in the Act or the Rules to control or regulate the discretion of the President when he chooses to withdraw the powers once delegated to the Vice-President. A Non-official Vice-President once bitterly complained to me that on certain misrepresentations made against him by the Head-Clerk behind his back, the Civilian President of the Taluk Board withdrew by one stroke of the pen all the powers delegated to him without giving the Vice-President an opportunity of explaining matters. I do not wish to say if the withdrawal of powers in the particular case was justified or not but the possibility of its not being justified or the possibility of an unfair treatment to the Non-official Vice-President is sufficient to justify certain safeguards against it.

Both in regard to delegation and the conditions under which its withdrawal could be made, I would suggest legislation on the lines of clause (d) and the proviso to section 39A of the District Municipalities Act. Certain broad outlines on which delegation may be made can well be suggested and a copy of the powers delegated should in all cases be communicated to Government and they should not be withdrawn without the sanction of Government. If these changes lead to any consequential changes in the proviso to clause (3) of section 33 of the Act, they should be made.

6. MEMBERS OF THE DISTRICT BOARD.—I would propose the following changes in the membership of the District Board :—The Non-official Presidents of Taluk Boards should be *ex officio* members of the District Boards, and suitable amendments to section 10 of the Act should be made. So long as the Taluk Boards are subordinate to District Boards and their action requires in many cases to be confirmed by the District Boards, the case of the Taluk Boards should well be represented in the District Boards and it could not better be represented than by the Presidents of Taluk Boards.

The powers of electing members to the District Boards is now given only to Taluk Boards. I am of opinion that

the privilege of electing members should not be confined to Taluk Boards alone. The interests of the District Boards and of the Taluk Boards are not identical, and in some cases, as for instance, when the question of distributing Sanitary Grants between the District Board and the Taluk Boards is considered, they may even be conflicting. I think the general tax-payers have a right to be represented in the District Boards other than by the members of the Taluk Boards and such a representation could be easily arranged. In addition to the members elected by the Taluk Boards, there may also be elected one or more members by each of the areas of Taluk Boards in a District by those among the list of persons competent to be candidates for election to a Taluk Board from those who are on the same list. I would therefore suggest an amendment on the above lines to clause (b) of section 11.

Officials should be prohibited from standing for election to the District Board. The reasons in support of such a prohibition have been so often urged that I need not repeat them here. I can speak from my own experience of instances where a Tahsildar stood for election to the District Board, the rival candidates—who were nearly all of them more worthy and better fitted to be elected—were invariably defeated. I cannot suggest that the official candidates brought any influence to bear upon the voters, but I am positive of this fact that some of the voters were in dread of voting against them. My suggestion would involve an amendment of clause (b) of section 11 and also of clause (24) of section 3 of the Act. The usefulness of the village officers in the Local Bodies is in my opinion over estimated by the official members in the Legislative Council. There are plenty of ryots in the rural parts quite as well informed as the village officers and in other respects better fitted than these to be in the Local Bodies.

7. MEMBERS OF THE TALUK BOARDS.—I would suggest the following changes in the membership of the Taluk Boards:—

i, In section 17, I would substitute “one fourth” for “one third”.

ii. Sections 16 and 22 contemplate the election by the panchayats of a member to the Taluk Board. I believe panchayats are nowhere now represented in the Taluk Boards. Certain of the panchayats, for instance, those that have a population of 4,000 and above may be given a right to send in a member to the Taluk Boards. Nearly all matters relating to expenditure by the panchayats require to be sanctioned by the Taluk Boards and the reason for the representation of at least of some of them is therefore obvious.

iii. I would delete the word "permanently" in clause (2) of section 23.

(a) (ii) MODE OF TRANSACTING BUSINESS.

8. In the portion of the Act dealing with this subject, I would suggest the following changes:—

i. In section 33 clause (2), the following may be added at the end of the sub-section: "The Board may by a general or special order authorize the President to exercise any such power to save delay". I consider this addition very necessary. This section and section 33A, if strictly adhered to, will work great hardship and cause great delay in the transaction of business. Section 33A is very limited in scope, for it demands that the work or the act should be necessary "for the service or safety of the public." Experience has shown that it is not possible to adhere to these sections. Almost every President has been obliged to sanction some work or expenditure in anticipation of the Board's sanction which cannot be strictly justified by section 33A of the Act.

ii. I would omit clauses (2) and (3) from section 36. In any case I would restrict the delegation only to the case of panchayats so that the position of the Presidents of Local Boards may not be impaired, especially of the Non-official Presidents in whose case it is likely to be exercised.

iii. I would add to section 45 another clause as follows:—

"Any servant aggrieved by any order of fine exceeding Rs. 5 or of suspension or of dismissal passed by the President

under this section may, within one month, prefer an appeal to the Boards concerned whose decision shall be final." Time taken in obtaining copies of the orders appealed against may be excluded.

Though servants of Local Boards are now given a right of appeal by a Government Order, I think it is better that the same should have legislative sanction. At present appeals lie against the orders of the Presidents of Taluk Boards to the Presidents of District Boards and the addition proposed will take it away from the Presidents of District Boards and vest it in the Taluk Boards.

The Value of the Visiting Nurse in Public Health Work.*

[BY JOHN N. RYAN, M. D., HEALTH OFFICER, PASSAIC, N. J.]

WHILE health officials have made considerable advance along the lines of sanitation, it is only recently that they have begun to emphasize the importance of directing our attention to the human body as the source and center of disease.

We know that pathogenic germs are spread from one individual to another by different vehicles of disease such as polluted water, contaminated milk, or insects. Filthy conditions of homes and manner of living are the greatest predisposing source of all diseases, but in reality it is the human body which is the original and worst source of all infection. Direct contact plays a most important part in all contagious diseases.

One of the greatest factors in remedying this evil is the teaching of personal hygiene, and the visiting nurse is the one best fitted for this task.

Three Fields of Activity.

We owe our real recognition of the importance of personal hygiene chiefly to the campaign against tuberculosis.

* Reprinted from the *American City*.

Sanitary shops and living quarters, sanitary care of sputum, and above all, healthy habits of the individual are essential, and these points can be emphasized best by the nurse, visiting at the home or shop and teaching the individual to observe these requirements. In the movement for the reduction of infant mortality, attempts were originally made, chiefly to improve an ineffectual artificial milk supply, while the main factors, the child and the mother, were neglected. Here again the importance of the teaching of personal hygiene becomes paramount. It has been proved that education of the individual is the keynote for the conservation of health and the prevention of the spread of disease, and this is why, in my judgment, the visiting nurse is essential in both the home and the factory.

The three fields of the nurse's activity lie in school inspection, in the campaign against tuberculosis, and in the reduction of infant mortality.

School Inspection.

While the school nurse does not legally come under the supervision of boards of health (except in the case of private schools), she is nevertheless a factor in the public health movement. Her main value is to detect cases of acute illness in school, which upon examination may prove contagious, and by eliminating such cases from the school, to prevent the spread of the disease. Where cases of physical defects are found by the medical inspector and excluded, she can, in her "follow-up" work, recommend these cases to a family physician or to a clinic or a hospital. Where these cases are treated in the homes, she can again emphasize personal hygiene. In many cases, particularly among the tenement population, the loss of school time has been enormous, and the nurse, by having these cases referred to the proper officials, is often able to have the children returned to school at an earlier date than would otherwise be possible. By awakening the parents to a sense of responsibility in this direction, she arouses a desire to learn ways and methods for the prevention of such conditions

in future. The teachings of the nurse and the demonstrations in hygiene given in the schools have resulted in a higher standard of cleanliness among the children. The teachings of the school nurse are thus made the link between school and home, for the child educates the mother by repeating the instruction received in school.

The Campaign Against Tuberculosis.

The first step in the prevention of tuberculosis, as in all other communicable diseases, is the notification and reporting of cases, which should be supplemented by home visitations, of what is generally called "follow-up work." Here the nurse plays a most essential part. In her visits she attempts to prevent the infection of others in the family, especially among the children. She instructs the patient as to the importance of hygiene, fresh air and sunlight, proper foods and the proper disposal of sputum. If the patient cannot be attended at home and is likely to become a menace by infecting others, she sees that the patient is removed to a hospital or a sanatorium. Outside of her follow-up work the visiting nurse in her general house visitations brings to light cases of tuberculosis that have not been reported. In this respect she has demonstrated conclusively her value to the public. As Mary E. Lent says of the tuberculosis nurse :

"She can put up the facts so strongly before the public that the State will finally be obliged to take measures to accomplish what she herself has been unable to do. She is able to unearth and expose to the public, conditions whose existence no one else could suspect. Her opportunities in this line are unlimited. She cannot stamp out tuberculosis by teaching her patients, but she can do enormously important work towards the same end by enlightening the general public in regard to the facts of the case and by interpreting for them the conditions that render futile the present efforts to eliminate the disease."

The Reduction of Infant Mortality.

The third important field for the visiting nurse is the reduction of infant mortality. The factors which play a very important part in the production of a high death-rate among children under one year of age are the following: ignorance and neglect, improper foods and over-feeding, atmospheric conditions, improper care of mother before birth, industrial conditions, bad housing. If I were asked which of these factors had most to do with the high death-rate, I should say ignorance and neglect. This being the case, the instruction of the individual mother both before and after birth is the first step toward the reduction of the death-rate. Here the nurse again is needed to teach the mother hygienic physiological facts which have a bearing upon the child before birth. A large percentage of mothers among the foreign population are engaged in industrial pursuits and then want of proper instruction bring about a high percentage of premature births. The nurse in the factory is able to cope with this situation, for by her teachings the women are enabled to prevent these premature births. Artificial feeding has played a very important part in infant mortality, because mothers have not been instructed as to the importance of breast feeding. Here the nurse, by proper prenatal teaching, can again display her value.

Other ways in which she can be of public service are by following up the registration of births and seeing that the registration law is complied with. The nurse is the one who enters into the home life of the people and teaches them the importance of keeping windows opened. She can show mothers the proper methods of clothing children, and how to prepare proper foods. She can point out the importance of cleanliness by demonstrating the method in which a child should be properly bathed and she can perform a hundred other services which together will mean the difference between life and death.

The visiting nurse's opportunities are unlimited, if she is qualified to avail herself of them. She may play an important

part in the general movement for better Municipal sanitation and in the broad scientific and sociological investigations which underlie the campaign for public health. Outside of her home limitations, she can be of value to people employed in the factories by inspecting them with regard to physical environment, atmospheric conditions, lighting, sanitary conveniences, their general cleanliness, and the protection of the worker against industrial poisoning. The value of the nurse in this field has been proved by the fact that a number of mills have engaged one or more nurses who in cases of accidents give first aid to injured, who make home visits to inquire for the sick, and in cases of poverty do the necessary nursing.

In all these ways the visiting nurse has proved herself an indispensable part of our modern life and a person to whom the people owe a lasting debt of gratitude.

Personal Hygiene.

[BY DR. M. R. SAMEY, M.D., D.P.H., (U.S.A.), M.R. SAN. I.,
(LONDON.)]

SLEEP.

“..... *The innocent sleep;
Sleep, that knits up the ravell'd sleeve of care,
The death of each day's life, sore labour's bath,
Balm of hurt minds, great nature's second course,
Chief nourisher in life's feast:*”—MACBETH.

THE words of the great poet express as well as any the imperative need of sleep, the comfort which it brings, and its absolute necessity to the integrity of the human organism.

And the lack of sleep is correspondingly distressing. When the loss is only moderate, the sufferer can still live, but his vital forces, deprived of their needed renewal, soon begin to decrease, and both body and mind suffer in consequence. When entirely deprived of sleep, the strongest man will soon die, the final end being usually preceded by a period of

insanity. It is said that in China the severest torture known is to deprive the victim of sleep by means of noises and lashings until after a few days he becomes a raving maniac.

Sleep is the only form of complete periodical rest of both body and mind. Alternate periods of rest and activity are common to all living beings. Action involves destruction and discharge of function implies consumption of structure. Waste must be repaired and the repair must be equal to the waste. The necessity for sleep arises from the demand of certain nerve-centres which undergo waste during the hours of activity. With the advent of sleep, the muscles, commencing from the extremities, become relaxed and this is followed by the closure of the eyelids resulting from the inactivity of their muscles. Hearing is the last sense to be dulled. The heart, the lungs, and the digestive tract and other organs continue to perform their respective work during sleep.

Sleep is really rest of the brain, but the spinal cord and the sympathetic system never sleep. Like other forms of rest it varies in degree and may be very slight—mere drowsiness—or very profound—complete cessation of all the functions depending on the centres of the brain.

The amount of sleep varies with age, occupation and habit. Excessive sleep makes the brain less active, while its deficiency leads to prostration and general restlessness, and sometimes to sleeplessness. The amount of sleep varies with:—

(a) *Age*.—Children require much more sleep than older people. An infant does little more during the first weeks of its existence than to eat and sleep. This is very natural, since the greater part of the process of growth and repair takes place during the hours of sleep. During the waking hours the vital functions are occupied in the expenditure of energy through the activity of muscular and nervous systems; but during sleep, these activities cease, and processes of growth and repair are carried on with great vigor. This is true to

some extent with plants as well as animals. During the day, the plant is occupied with receiving food and elaborating it into nutritive materials by which its sap is enriched, and during the night the new material received through the day is organized into cells and formed into the tissues of the growing plant. It is of great importance then that children should be allowed ample time for sleep. For a child eight or ten years of age, ten hours of sleep is none too much. Infants sleep the greater part of the day, and the duration decreases as age advances, adults requiring about six hours' sleep. The most important factor for the retention of health in age is sleep. Those above sixty need more sleep than they did in middle life, or at least need to spend more of their time in a reclining position. It is not absolutely necessary that they should sleep all the time, but they ought to spend at least eight hours lying down with all portions of the body on about the same level, so as to save their hearts the necessity for pumping blood against the force of gravity. It must be borne in mind that some two gallons of blood—that is sixteen pounds—go through the heart about every minute. The merely mechanical labor performed by the heart muscles is enormous. The saving of the heart by lying down is extremely favorable for old hearts. Besides, the old should lie down for sometime about the middle of their working day. If they get up a little after seven o'clock and stay up until nearly eleven, the sixteen hour day should be broken between two and four o'clock by a prolonged interval of lying down.

(b) *Sickness*.—Weak, debilitated and sick persons require more sleep and repose than healthy persons.

(c) *Occupation*.—Persons engaged in brain work require more rest and sleep than those doing physical labour.

To sleep immediately after meals is a bad practice. The saying "after supper walk a mile" holds good at all times. It is a matter of indifference in what posture a person sleeps, but sleeping on the back is a bad habit. The old aphorism of Hippocrates "Sleep not on your back or in the posture of a

dead man" eloquently interdicts this evil practice. The bed should be firm and elastic, and exposed to the sun daily. The head should always rest on a pillow, and the body, barring the head and face, should be covered with a sheet. The pernicious habit of a number of persons sleeping together in the same room and of covering the head and face is partly responsible for the feeble and weak health of the people of this country.

Midday Sleep—"In India and other hot climates the tendency to indolence or lethargy is promoted by the heat, whether dry or moist, and more particularly by a hot, muggy humid atmosphere, as in Calcutta, Dacca, or Bombay. To yield too much to this feeling, which only requires encouragement to degenerate into a confirmed habit, is injurious," opines Sir Joseph Fayrer. But it seems that a good nap or siesta, especially in the summer, particularly with those engaged in active work in the morning, is not only highly refreshing but invigorating.

Sleep is as much a necessity to the existence of all animal organizations as light, air, or any other element incident to their maintenance and healthful development. The constitutional relation of man to the changes of the seasons, and the succession of days and nights, implies the necessity of sleep. Natural or functional sleep is a complete cessation of the operations of the brain and sensory nervous ganglia, and is therefore attended with entire unconsciousness. Thoroughly healthy people, it is believed, never dream. Dreaming implies imperfect rest—some disturbing cause, usually gastric irritation, exciting the brain to feeble and disordered functional action. Individuals of very studious habits, and those whose labours are disproportionately intellectual, require more sleep than those whose duties or pursuits require more manual and less mental exertion. The waste of nervous influence in the brain of literary or studious persons requires a longer time to be repaired or supplied than in those even who endure the largest amount of physical toil, without particular necessity for active thought while engaged in their daily manual pursuits. No

avocation or habit affects the question of the amount of sleep necessary for a healthy individual so much as the quality of the ingesta. Those who subsist principally upon a vegetable diet, it is said, require less sleep than those who subsist on both animal and vegetable food. It seems certain that herbivorous animals sleep less than the carnivorous; while the omnivora require more sleep than the herbivora and less than the carnivora. Man, therefore, partaking most of the omnivorous, living on a mixed diet of animal and vegetable food, requires more sleep than the ox, the horse, or the sheep, but much less than the lion, the tiger, or the bear.

Physiologists are not well agreed respecting the natural duration of sleep. Indeed, no positive rule can be laid down on this subject; the statute of Nature, however, appears to read: retire soon after dark, and rise with the first rays of morning light; and this is equally applicable to all climates and all seasons, at least in all parts of the globe proper for human habitations, for in the cold season, when the nights are longer, more sleep is required.

History shows that those who have lived the longest were the longest sleepers, the average duration of sleep being about eight hours. The time of sleep of each individual must depend on his temperament, manner of life and dietetic habits. For instance, it is said, "John Wesley with an active nervous temperament and a rigidly plain vegetable diet, and who performed an immense amount of bodily labor, slept but four or five hours out of the twenty-four; while Daniel Webster, with a more powerful frame but less active organisation, and living on a mixed diet, had a "talent for sleeping" eight or nine hours. Benjamin Franklin says that "Seven hours sleep was enough for any man, eight hours for a woman, and nine hours for a fool!" Nevertheless, the invariable rule for all whose habits are correct, is to retire early in the evening, and sleep as long as the slumber is quiet, be the time six, seven, eight, or nine hours. Those who indulge in late suppers, or heartily eat before retiring, are usually

troubled with unpleasant dreams, nightmare, and are often found dead in the morning. Restless dozing in the morning is exceedingly debilitating to the constitution. Persons addicted to spirituous liquors and tobacco, in connection with high seasoned food, are in danger of oversleeping even to the extent of very considerably increasing the stupidity and imbecility of the mind, and indolence and debility of body naturally and necessarily consequent upon those habits.

The position of the body should be perfectly flat or horizontal with the head, a little varied by a small pillow. Sleeping with the head elevated by two or three pillows or bolsters is certainly a bad habit. The neck is bent, the chest is compressed, and the body unnaturally crooked. Children are made round shouldered from their heads being placed on high pillows. The beds should be made of straw, corn husks, hair, various palms and grasses, never of feathers, which can only be mentioned in reprehension. The bed clothing should always be kept scrupulously clean, and adapted to the season of the year. The bed-rooms should always be sufficiently large and airy as best conducive to sound sleep and general vigorous health. This injunction cannot be overdone.

Small-pox Prevention.

IN a circular to Metropolitan boroughs, boroughs, urban districts, and rural districts, the Local Government Board state that it has been represented to the President that it is desirable that further facilities should be provided for securing on the occurrence of any case of small-pox the prompt vaccination and revaccination of persons who have come in contact with the infection. Regulations have therefore been made empowering medical officers of health of sanitary districts to perform vaccination or revaccination of any such persons who are willing to be vaccinated.

In the performance of vaccination in pursuance of the regulations, the following instructions should be observed :

(a) Vaccination should at every stage be carried out with aseptic precautions, which should include the cleansing of the

surface of the skin before vaccination, the use of sterilised instruments, and the protection of the vaccinated surface against extraneous infection both on the performance of the operation and on inspection of the results. Advice as to the precautions to be taken in this respect until the scabs have fallen and the arm has healed should always be given to the person vaccinated, or, in the case of the vaccination of a child not more than 14 years of age, to the parent or other person having the custody of the child.

(b) In all ordinary cases of primary vaccination the medical officer of health should aim at producing four separate good sized vesicles or groups of vesicles, not less than half an inch from one another. The total area of vesiculation resulting from the vaccination should not be less than half a square inch.

(c) If any person vaccinated or revaccinated by a medical officer of health in pursuance of these regulations requires medical treatment in consequence of the vaccination or re-vaccination the local authority should offer to provide such medical treatment as may be required.

The powers conferred upon the medical officer of health under these regulations are only intended to be exercised in the cases of persons who have been in immediate contact with persons suffering from small-pox. The local authority should arrange to pay to the medical officer of health such sum as is reasonable in respect of the extra work which he undertakes in pursuance of these regulations. For their guidance the Board state that in their view the payment should be not less than 2s. 6d. for every vaccination or revaccination performed.

The Efficacy of Disinfectants.*

SINCE the question was first raised in the year 1906, many of the so-called "disinfectants" have been found to be of no value whatever for the purposes for which

* From a Report of the Committee of the Bombay Corporation regarding the disinfectants used by the Health Department.

they were used, and the report of the Plague Research Commission in India has confirmed it. In his report No. 12213, dated the 3rd October 1906, with reference to Corporation Resolution No. 2535, dated the 13th August 1906, the Health Officer also reported as follows :—

“ It seems to me that the various disinfectants tried in Bombay and elsewhere are on the strength of reports made by the various authorities on their efficacy in destroying the life power of various micro-organisms associated with specific diseases. It is impossible to say how far they have been efficacious or how much greater the spread of infectious diseases would have been had they not been used. There is no doubt that many of the so-called disinfectants are mere frauds and as such may not serve the purpose which they are advertised for.”

After a series of very careful and elaborate experiments in respect of houses thoroughly disinfected under the direct supervision of the Health Department, the Plague Research Commission found that even the most powerful disinfectants such as gaseous fumes of burning sulphur and acid solution of Perchloride of Mercury of full strength, although capable of readily killing all plague germs even on dung-spread floors and walls and ceilings of living rooms of plague-infected houses, were not able to kill the rat fleas, which had been proved to be the principal sources of plague infection in human beings and did not prevent its recurrence even in houses thoroughly disinfected previously under the direct supervision of the Health Department. Many of these useless disinfectants have been consequently discarded by the Health Officer and the Committee are glad to find that during the last five years there has been a gradual reduction in the expenditure on disinfectants. In his report No. 31622, dated the 22nd December 1915, the Health Officer says only four varieties of disinfectants, *viz.*, Pesterine, Zondo Fluid, Sulphur and Izal Powder are used now against nineteen varieties formerly in use. The Committee see no objection to such restricted use of disinfectants and they hope that the expenditure on disinfectants will be kept at the same level if not reduced still further in ordinary circumstances.

Sanitation of Pilgrim Centres.⁺

HEREWITH forward the four pilgrim reports which have been completed—two were written by Committees under the Chairmanship of Lieutenant-Colonel Robertson, namely, those for Bihar and Orissa and the United Provinces, and two by Committees under myself, namely, those of Madras and Bombay. These four Provinces contain by far the most of the important pilgrim centres. The subject of the remaining Provinces may be left for the time being, because in Bengal, as now constituted, there are no important pilgrim centres, and in the Punjab and the Central Provinces the Sanitary Commissioners have reverted to military duty. On the cessation of the war these two Provinces should also be examined.

2. *Railway Matters.*—In all the pilgrim reports it will be noticed that matters connected with the railways have received a great deal of attention. The matter is of course a very important one both from the point of view of the Government of India and that of health. The conditions in the United Provinces and Bihar and Orissa are very similar and the reports, both of which are written by Lieutenant-Colonel Robertson's Committees, are practically word for word the same; the statements made in these reports apply only to the Provinces about which they are written. Thus, a remark that all railways carry pilgrims in goods wagons may be correct as far as Bihar and Orissa is concerned, but it is not a fact as regards the whole of India, for a reference to the Madras and Bombay reports will show that two very important lines have ceased this practice.

3. To commence with, it would be well to review the principal causes of criticism that the public make concerning the railway administration. By far the most important of these are: (1) overcrowding of ordinary trains and pilgrim specials and (2) the use of goods waggons to carry pilgrims. It may be safely stated that if these objections are removed the remainder would be so insignificant as to give rise to no serious agitation. The Government of India can hardly be aware of the amount of ill-feeling and ill-will towards

* Report submitted to the Government of India by Lieutenant-Colonel W. W. Clemasha, I.M.S., Sanitary Commissioner with the Government of India.

themselves that these two conditions engender. The ordinary third-class passenger does not take a very intelligent view of the situation ; he is not aware that in all countries overcrowding in railway always occurs at certain times and he naturally blames Government for any inconvenience which he suffers. Still many of the pilgrim crowds are in a cheerful frame of mind and are prepared to put up with a good deal in the way of unpleasantly overcrowded trains for a certain length of time, but there is no doubt whatever that the use of goods wagons is extremely unpopular and considering the inconvenience which they have to suffer forms a legitimate source of complaint. Practically all the Pilgrim Committees agree on this point and it would be well for the Government of India to look very closely into the matter and to remove as far as possible this most potent factor in causing ill-will. When dealing with the overcrowding of trains it is, of course, hardly necessary for me to point out that the pilgrims themselves are in many cases responsible for the state of affairs that exists. They will not leave their own party even when there is plenty of accommodation in other compartments. They will not wait for a special, even though the regular train is full to overflowing, and they would rather get into any sort of goods wagons, however hot and insanitary, than be left at a station platform.

4. It is also unnecessary for me to give in detail in this note the opinion of the various Committees on the subject of the use of goods wagons. All agree that for long journeys they are insanitary and at all times uncomfortable and frequently very badly ventilated. Practically all the Committees join in condemning the practice of using these wagons. All the Committees also recognise the difficulties in the way of remedying matters.

5. Although the four reports enclosed deal pretty fully with local conditions on the various railways, there are some points which, when considering India as a whole, require a certain amount of amplification. From a railway point of view the pilgrim traffic throughout India divides itself into three broad classes, *viz.*, (1) ordinary festivals which occur every year about the same time varying very little in number of visitors from year to year, (2) the large festivals which occur on an average once every twelve years ; these are Kumbh Mela at Hardwar, Kumbh Magh Mella at Allahabad, the twelfth-yearly big fair at Puri, the Pushkaram of the Godavari and Krishna, the Mahamakam at Kumbakonam and the Sinhast at Nasik, (3) the

holy places to which people go all the year round and at which the festivals are not of a very great importance; these are Benares, Gaya, Rameshwaram and others. Of course, it will be understood that the above classification is not a very hard and fast one. Thus on the sixth year or the Adh-kumbh the Magh Mela at Allahabad is sometimes almost as big as the Kumbh itself. From the point of view of railways, which is what we are at present considering, class (3) can be neglected. No railway that I am aware of has any great difficulty in carrying pilgrims to or from these holy places in ordinary non-festival times, nor, indeed, is there any complaint about the overcrowding to and from these particular places. Let us deal now with class (1). As these festivals are of regular annual occurrence there is no doubt whatever that more should be done by the railways to obviate overcrowding and the use of goods wagons. Several recommendations of importance have been made in the various reports. The first is that the railway companies are frequently inadequately prepared for the rush of pilgrims at the various stations. They do not make the best use of previous experience. The railway companies not infrequently themselves complain that they get no help from the civil authorities in warning them as to the probable number of pilgrims travelling in any particular year. In Bombay the Pilgrim Committee felt that it was not by any means impossible for the revenue and municipal authorities to assist in this matter and that co-ordination between these departments and the railway would probably remove a good deal of this objection. It may never be possible for any district officer to foretell the number of people who are likely to visit any particular festival in any particular year, but it would certainly be within his powers to say that any particular year was an auspicious year according to Hindu ideas, and that the agricultural conditions of the country rendered it likely that large numbers of pilgrims would be travelling to any particular festival. This information might be of the greatest possible service to the railway company and arrangements should be made to obtain this assistance.

6. The whole problem of the use of goods wagons assumes a different aspect according as to whether we are dealing with the annual pilgrim traffic or the large festivals. At present on many lines there is no doubt that goods wagons are used for ordinary

annual festivals, the Oudh and Rohilkhand, the Bengal and North-Western and the Madras and Southern Mahratta ; on many lines however, they have been discontinued, particularly the South Indian, the Bombay, Baroda and Central India Railways, and to a large extent on the East Indian and Bengal-Nagpur Railways. It is the deficiency in rolling stock for the normal annual traffic which gives rise to so much ill-feeling and which all the Pilgrim Committees join in condemning.

7. The amount of rolling stock of each railway should be equal to the ordinary annual demands of the country served by the line. The South Indian Railway possess only a single line passing through a very populous country. There are more pilgrim centres in the area served than any other part of India and yet they have so arranged their traffic that they take all pilgrims (admittedly with a certain amount of overcrowding) in ordinary third-class rolling stock ; the Bombay, Baroda and Central India Railway have done the same, although it is admitted that in their cases the problem did not present as many difficulties as in some of the other lines. The East Indian Railway, we are informed, seldom uses goods wagons for ordinary annual festivals. The Bengal-Nagpur Railway only used five specials consisting of goods wagons in 1914 and two in 1915. It seems fair to argue that what these railway companies have accomplished others can do. The figures recorded in the Great Indian Peninsula Railway show that the total number of passengers carried in goods wagons at one of the largest festivals in Pandharpur was only 10,000. The additional rolling stock necessary to carry these comparatively small numbers would not be a great matter for a line of the size and importance of the Great Indian Peninsula.

Further, the length of journey in which goods wagons are made use of is also a very important point. There is much less objection to their use on a small branch line than for long journeys. Thus, the Committees considered that every endeavour should be made to provide ordinary rolling stock for long-distance journeys, and if goods wagons are to be used at all they should be confined to branch lines where journeys occupy a few hours only.

8. Let us now deal with class (2). Here the problem is an entirely different one. As already pointed out, festivals only occur

once in twelve years; the numbers are huge and the calls on the rolling stock are phenomenal. In these cases two things are necessary—(1) that the railway company should have adequate warning of the festival, should make provision well in advance, and should, if they so desire, ask for any information they may require to guide them, from the Civil Authorities; (2) as it is a foregone conclusion that goods wagons must be used, careful preparation should be made; only the most suitable and best type should be used and these should be carefully cleansed. I also beg to draw the attention of the Government of India to the recommendations made by the Bombay Pilgrim Committee, namely, that as long as goods wagons are to be made use of, a special type should be designed which is well ventilated and capable of being provided with wooden floors and seats when required. In the report we mentioned the 40-ton bogie wagons belonging to the Great Indian Peninsula Railway. It seems to us to be a perfectly feasible proposition to convert these temporarily into a satisfactory form of vehicle for human beings. We do not recommend the installing of a latrine. This would appear to us to remove the necessity for any large reserve of rolling stock which represents so much unproductive capital. I recommend this last suggestion to the careful attention of Government.

9. We will now consider the subject of conservancy and water supply *en route* as they are intimately connected with that of carriage accommodation. Apparently, three out of four Pilgrim Committees have come to the conclusion that when trains are to be composed of goods wagons the running arrangements should be very different from that of an ordinary fast train. The various Committees admit that it is practically impossible to expect latrines in either present type or the suggested goods wagon. They also point out that the arrangements for distributing drinking water on the line to these heavily laden trains are in many parts of the country very deficient. They recommend therefore that at certain places, where there is ample water supply, long halts should be made, ample latrine accommodation, of either a temporary or permanent nature, should be provided, and that the policy of the railway should not be to attempt to provide latrines in the goods wagons, but to give ample opportunity for visiting latrines at regular intervals at suitable places along the line. The actual method of

distributing drinking water will not be a serious difficulty provided sufficient hydrants are provided and sufficient time is given to allow passengers to alight. The various Committees naturally do not propose to go into greater detail than this as they recognise in the matter of running trains the railways are the only authority capable of advising Government. But they suggest that as long as trains unprovided with latrines are to be allowed, special arrangements are necessary to meet this condition and the above suggestions seem to them to be the best on the whole. Further that the arrangements mentioned above for supplying drinking water will obviously be available for the trains which are composed of ordinary rolling stock.

10. *Medical Arrangements on Railways.*—All the Pilgrim Committees have studied carefully arrangements for prevention of the spread of conveying infectious disease and for the treatment of the sick on the various lines. In practically every case they consider that very considerable improvement is necessary. The medical arrangements of the South Indian and Bengal Nagpur Railways, however, leave very little room for improvement. This subject naturally divides itself into two parts:—

(1) Inspection of passengers, and

(2) suitable arrangements for dealing with cases which may occur on the line.

The first of these heads will be dealt with in another part of this report. At present several of the railway companies consider that all they have to do is to take a sick man out of the carriage and hand him over to the police. This is unsatisfactory both from the point of view of the railway and that of the sick man. Along all the main lines there should be properly appointed stations where patients must be removed if suffering from any infectious disease. They should not be removed at places where no facilities for treatment exist. On the whole all the Pilgrim Committees consider that the railway company should be responsible for removing the patients and sending them to the hospital, but it is advisable to have the hospitals under the local civil authorities. Occasionally it happens that at a large and important junction there is no hospital accommodation other than the railway hospital; in these cases it is desirable that a civil hospital be provided. I think we should

address local Governments on this subject saying that on many of the lines adequate arrangements do not exist and ask them to call for reports on the arrangements in their own Province and to carry out such improvements as they consider to be necessary.

11. *Food Supply.*—I do not propose to say a great deal on the subject of the food-supply on the line. The subject is, as will be seen from the reports, fraught with a great many difficulties. There is no doubt that many of the railway companies are not sufficiently strict with regard to the conditions they impose on license holders for the protection of the public in the matter of the sale of food. In this matter the Great Indian Peninsula Railway appears to be in advance of other lines and I would recommend that the regulations and the plans of fly-proof boxes, doolies, etc., be made available to all of the various railways in order that they may benefit by the experience obtained on this line and as far as possible make suitable adoption of this system on their own.

Need for more co-ordination between the Local Sanitary Commissioners in connection with cholera statistics.

12. In the paragraphs dealing with medical inspection of pilgrims we have pointed out that it is very necessary that Sanitary Commissioners of the Provinces in which a large festival is about to take place should be in possession of facts connected with the health of the districts from which pilgrims come. In the Bombay Pilgrim Report we have pointed out that the Sanitary Commissioner of that Province has not complete knowledge of the health conditions of the neighbouring Provinces, particularly Native States; that on account of this defect it is often extremely difficult for him to make adequate arrangements for the protection of his own Presidency. There is no doubt whatever that this matter is of more importance in the Presidency of Bombay than in some other parts of India because, (1) there are some important pilgrim centres situated in the neighbouring Native States, and, (2) a great deal of the pilgrim traffic is along main roads. Although necessary arrangements are required for railway passengers, pilgrims travelling by road require more elaborate measures and these are more difficult to arrange. Therefore, it must be admitted that the existing state of affairs is a source of weakness in our protective mechanism which it is necessary to remedy. Before making

recommendations there is another point which also requires some discussion, namely, that in several of the Provinces the Sanitary Commissioner himself only gets very tardy information concerning the outbreak of cholera and it is obvious if any local Sanitary Commissioner is not in receipt of early and complete information on the subject of outbreaks of cholera he is not in a position to advise the neighbouring Sanitary Commissioners of the state of health of his charge. This subject is a very large one and one which I think would be better dealt with separately. I propose to do this at an early date. Assuming, then, that a Sanitary Commissioner of a Province will shortly have accurate knowledge of cholera outbreaks within his Province, it is necessary for us to establish some system whereby that information is available to the Sanitary Commissioners of the neighbouring Provinces. I have given this subject considerable thought and I consider that we should address all local Governments on this subject asking their views as to the best way of remedying this evil in their own Province. We might suggest the feasibility of arranging with their neighbouring States and Provinces to obtain direct the information that they require. I do not consider that any centrally controlled system of supplying the information is likely to be satisfactory or sufficiently expeditious for the purpose for which it is required.

The amount and locale of inspection necessary on railways is dependent on accurate knowledge of the health conditions in the neighbouring districts. Without this information such inspection must lack discrimination; thus in one year there would be considerable waste of money and in others the staff may be inadequate to deal with the situation.

13. Before leaving this subject of the reporting of cholera I wish to point out that there is a great deal of difference in various Provinces as to the amount of attention bestowed on local outbreaks of that disease. It will be found that in the Madras Pilgrim Report little or nothing has been done in the way of careful investigation of outbreaks of the disease. Very little accurate information could be supplied to the Pilgrim Committee concerning the past outbreaks of the disease. The notable exception to this is the Presidency of Bombay, where it will be seen from the Pilgrim Report the matter has been carefully studied and accurate information concerning the

past outbreaks is available. I consider it is very desirable to draw the attention of local Governments, with the exception of Bombay, to the fact that the outbreaks in many cases are not satisfactorily investigated, as regards their origin, etc. We consider that the Sanitary Department of these Provinces should be asked to pay more attention to this part of their duties. Also that careful records should be kept of the origin of outbreaks of the disease as this knowledge lies at the root of all sound remedial measures.

14. *Municipal Government in pilgrim areas.*—It is with some diffidence that I approach this subject, but I feel it my duty to lay before the Government of India one important fact that has struck me very forcibly in my sojourn throughout India with the Pilgrim Committees, namely, that the municipal type of government is not suited to an important pilgrim centre. It appears to me bad in many ways. In the first place, the ordinary municipality cannot be expected to possess the wide angle of vision necessary for understanding the requirements of a large pilgrim centre. The commissioners naturally look upon the place from their own point of view, *viz.*, that it is their home, the pilgrims being sent to them by some dispensation of Providence in order to provide them with a livelihood. Hence local municipal commissioners cannot be made to understand the necessity for a very much higher standard of sanitary excellence than prevails in all small towns of the Presidency. The Municipal Boards are slow to act and are obstructive. Important suggestions are frequently made by the local sanitary department which are either frankly opposed or so delayed that years elapse before they are carried out. Money which is intended to be spent on arrangements for pilgrims is not infrequently expended in other ways.

15. Let us take a few of the more important examples of delay, etc.—The necessity for a filtered water supply in Puri was pointed out in 1900, to my knowledge, and possibly at an earlier date, but it has not become an accomplished fact yet. Still it is well-known that Puri is the centre from which cholera is spread all over Bihar and Orissa, the Central Provinces and the northern portion of Madras. How many deaths from this fell disease could be traced to Puri in these 16 years? 408 cases, alive or dead, were taken out of trains on the Bengal and Nagpur Railway in one year ;

and in 4 weeks, of 754 cases that occurred in Bengal, 384 were actually traced to Puri. The Pilgrim Committee in Bombay have made recommendations for the improvement of the sanitation of the town of Pandharpur which are substantially the same as those made in 1873. Pandharpur is a distributing centre of cholera for the Bombay Presidency and the Berars and Central India generally. It has taken close on half a century to get a few elementary sanitary projects put through and many still are required.

16. In practically every Province the Municipal Act, or what corresponds to it, gives very liberal powers to municipalities to make bye-laws regulating all sanitary needs in the town. It is safe to say that these powers are practically never utilized to the full and in some cases they are never applied at all. In a pilgrim centre this is a very serious matter. Nasik has not yet made bye-laws regulating the various sanitary departments though they were made a Municipality in 1868. Again Municipal Commissioners will not incur the ill-will brought about by prosecuting a lodging-house keeper who has an insanitary or overcrowded dwelling.

These and many others are the faults and deficiencies of the ordinary municipality and they are paid for in the lives of hundreds of our fellow-countrymen.

17. There is another aspect of the question. When a festival is actually going on, the Chairman of the Municipality, whoever he may happen to be, is in charge of the festival. If it should happen that the *melā* is a specially important or big one, the District Magistrate, and sometimes the Sanitary Commissioner or a Deputy may also be present, but in quite a large number of cases the only responsible person is the Chairman of the Municipality. There are now a large number of non-official chairmen in pilgrim centres in some parts of India and these gentlemen have not the necessary training to meet all emergencies that may occur during a festival; the arrangement is not fair to them or to the people generally. An example of what I mean was met with in the town of Tirupati where the chairman was a local pleader. Cholera broke out at an important religious gathering; the water from several wells and tanks was sent to the King Institute for analysis and one tank was condemned by the analyst as containing cholera vibrios. Measures

to prevent the use of this tank as a source of drinking supply were not taken because the chairman said "that there would not be a sufficient quantity of water for everybody if this was done." In this instance the situation was a difficult one and one fraught with danger to many. A local pleader is not likely to handle it properly, nor is it fair to expect him to do so. Only a thoroughly trained and experienced officer would have known what to do, and I maintain that in these large centres of pilgrim traffic only competent officers should be in charge and the local opposition should not be allowed to postpone necessary reforms.

18. The remedy for this state of affairs is not by any means easy. Probably the Bombay plan of appointing Municipal Commissioners and Chief Officers who possess very large powers is a fairly satisfactory solution, but even here the council can delay reforms. Many of these important centres like Puri, Rameshwaram, Pandharpur and Nasik should, in my opinion, be run by men directly appointed by Government who of course should finance the whole arrangement, collecting a revenue both from the pilgrims and townspeople by some appropriate means and meeting the deficit from Provincial revenues.

I admit that this suggestion is opposed to the general policy of Government, but I still maintain that these important pilgrim centres are not places to educate people in the advantages of local self-government, because the results of mismanagement do not recoil on the heads of the inhabitants to any extent, but on the people of India in general.

Finance.

19. The various financial paragraphs of the pilgrim reports are interesting. In every Province the same difficulty has arisen, *viz.*, that the local funds are not sufficient to meet the demands for sanitary reforms which are growing from year to year. The railways have so altered the pilgrim traffic of this country that it has become necessary to insist on a very high standard of sanitary excellence in all pilgrim centres. The expenditure on pilgrim centres will always be considerable and a great deal still requires to be done before we are satisfied that these places are not centres from which disease is spread. All this will cost large sums of money. The question is, where is this to come from? My own opinion is

that a large sum of money can be raised—a sum quite sufficient to deal satisfactorily with most of the important places—by an appropriate tax on the pilgrims themselves. It is unnecessary for me to discuss here the various methods adopted in various Provinces to raise these taxes, but from what I have seen I disapprove of any extension of the system common in Bombay, namely, collecting the money at *nakas* or octroi posts on the road from the pilgrims coming in or going out. This system undoubtedly leads to a great deal of money going into the wrong hands and is, I consider, objectionable from many other points of view. As a matter of fact, in the Bombay Presidency the system has been in vogue for many years and everybody now has accepted it, therefore there is no particular point in altering it. From what I have seen I am in favour of making a collection on railway tickets. This I consider to be the only satisfactory way of raising money and one which is not felt by the pilgrims themselves. Of course, there are arguments against it (these will be found in the reports) but the balance is very much in favour of this method over any other possible suggestion. As time goes on, pilgrims visiting the shrines will use the railways more and more. Further, more pilgrim centres are likely to be connected to existing lines by light railways. The Barsi Light Railway exists simply and solely for the Pandharpur pilgrim traffic and it is to be largely extended in the near future. The line connecting Rameshwaram and Madura was built originally to carry pilgrims. Therefore, I maintain that a large revenue is available by putting a tax on tickets to these various pilgrim centres, and if this is done systematically, a revenue can be produced which will in time enable us to provide all these important pilgrim centres with everything that is necessary from a sanitary point of view. I am of opinion that the system should be greatly extended. That large sums are required for initial charges and for recurrent expenditure is admitted on all hands, and the awful results which accrue from an epidemic of communicable disease at one of the large festivals is so great that money for remedying these pilgrim centres must be found from somewhere.

The Lodging House Act of Bengal is a fairly satisfactory way of raising money and looking after the lodging-houses as well. In this enactment the lodging house keeper pays Re. 1 per head per annum for the number of people his house is licensed for. Though

useful in some ways it is not in my opinion as satisfactory as a tax on railway tickets, because it is only drawn from people who actually lodge in these licensed houses and those who reside in camps, or who visit friends and leave in unlicensed houses, escape.

If the Government agree with these suggestions, we might consult local Governments and advise them to consider the advisability of completing these necessary details to inaugurate the work.

20. The Government of India will certainly look for some definite recommendations as regards the relative importance of the many pilgrim centres in India. I, therefore, propose to give the results of my study of the question as a whole for the guidance of the Government as briefly as possible in the event of their wishing to make grants for the improvement of sanitation in these places at some future date. The first important statement that I wish to make is that, speaking from a sanitary point of view, the large festivals that occur at Hardwar, Allahabad, the Godavari, the Krishna, at Kumbakonam, Nasik, and Puri are of paramount importance to the health of India; consequently money should be provided in sufficient quantity to enable sanitary arrangements on a suitable scale to be provided. Parsimony at these festivals is paid for in lives. The following places are placed in their approximate order of importance as regards distributing centres for infectious diseases throughout India. In all of these places very adequate sanitary arrangements are absolutely necessary as most are visited by the pilgrims at all times of the year :—

Class I, Pandharpur.

Class II, Hardwar, Puri, Tirupati and Rameshwaram.

Class III, Nasik, Allahabad, Gaya, Madura and neighbouring shrines, Palani, Muttra, Brindaban and Ajodhya.

The difference between the various classes is really very slight.

Unearned Increment Tax.

I. Germany.*

TO render land speculation more difficult and to discourage its practice as much as possible, and led by the principle that the community as a whole is entitled to a part of the increased value of land created by its labour, the German

* The Bulletin of the United States Bureau of Labor Statistics.

Parliament enacted on February 14, 1911, a law laying a tax on the so-called unearned increment (*Zuwachsstenergesetz*). This law provides for a progressive tax on all real estate transfers upon the unearned profits of the owner of the property. Exempt from the tax is improved real estate not worth more than 20,000 marks (\$4,760), and unimproved real estate not worth more than 5,000 marks (\$1,190), provided neither the seller nor his wife has an annual income in excess of 2,000 marks (\$476) and is not in the real estate business. All public welfare building associations are also exempt. The revenue from this tax is divided as follows: Fifty per cent. goes to the Empire, 10 per cent. to the Federal States for administration and collection, and 40 per cent. to the communes. The Empire's share of this tax for the first 11 months of the fiscal year 1912 was 18,310,394 marks (\$4,357,873.77). Article 58 of the law authorises the communes to levy an additional unearned increment tax, and a number of them are availing themselves of this authorization.

A large number of the communes use the revenue derived from the unearned increment tax to acquire land and afterwards build workmen's homes on it, or grant to public-welfare associations the hereditary right of construction on the land.

II. Austria.*

The fourth convention of communal officials of German-Austrian Cities (*Deutschoesterreichischer Städtetag*) had as early as 1905 advocated the introduction of a tax on the unearned increment. The same subject came up for discussion in 1908 at the sixth convention of communal officials of Austrian Cities (*Oesterreichischer Städtetag*) which framed a bill authorising the communes to levy a tax on the unearned increment. The introduction of such a tax was also repeatedly proposed in the City Council of Vienna.

These proposals have only lately come near to realisation. On the occasion of discussions as to the rehabilitation of the

* The Bulletin of the United States Bureau of Labor Statistics.

finances of the individual Provinces, the Austrian Government showed its willingness to permit incorporated public bodies to levy a tax on the unearned increment as a new source of revenue. The Government submitted to the various provincial diets two model bills, one of which provided for the obligatory introduction by all communes of an unearned increment tax as a provincial and communal tax, and the other for its optional introduction as a communal tax. Both bills provide for progressive taxation of the unearned increment at the time of transfer and are essentially based on the principles of the German imperial law regarding the levy of such a tax. A noteworthy provision of the second bill is that it obligates the communes to use only part of the revenue of the tax for their current expenditure while the balance of the revenue is to be assigned to a reserve fund which shall be used for investments in land designated for communal housing work or erection of Schools, or for the refund of communal debts.

The diets of Corinthia, Carniola, Trieste, and Tyrol have lately enacted laws similar in their contents to the first-named model bill introducing an unearned increment tax in rural and urban communes.

III.—America.

A Tax upon the unearned increment of land values has been repeatedly urged upon American cities. Taking as a basis the assessed valuation of a parcel of land at the time the tax becomes effective, it is proposed that each year thereafter a dual tax shall be levied, one part at the regular rate on the assessed valuation and a second part on the amount by which the assessed valuation has increased within the year on account of causes other than improvements made by the owner or for which he is required to pay in the form of special assessments. Such a tax would be eminently fair, and as a means of reaching community values it is to be recommended in those cities in which the assessed valuation of property is near the actual value. In other cities, it would seem that

such a tax would put an obstacle in the way of full-value assessments.—*The American City*.

IV.—Proposals in Madras.

[By C. P. RAMASWAMI AIYAR, MUNICIPAL COMMISSIONER,
MADRAS CORPORATION.]

It is proposed in this short sketch to consider the question of what is usually termed “the unearned increment.” It has assumed immediate importance owing to the proposals in the Draft City Municipal Bill, 1916, for the levy of what is therein termed the “increment duty.” (*Vide* sections 126 to 139 of the Bill.) The endeavour will be in the following pages to summarise the views held on this matter so that the various aspects of this form of taxation may be clearly perceived and differentiated. There is no gain-saying that the idea itself, though adumbrated by earlier economists, was brought to the fore-front by the late Henry George in his classical thesis, “Progress and Poverty,” wherein he maintained that private property in land was inconsistent with the best use of land and pleaded for a complete recognition of the common rights of the public to all lands. The increment duties are only developments or compromises arising out of this theory. Henry George, of course, was of the opinion that treating land as private property stood in the way of its proper use. He urged that if land were treated as public property it would be used and improved as soon as there was need for its use or improvement, but being treated as private property, the individual owner has been allowed to prevent others from using or improving what he cannot or will not use or improve. His plan was simple, though revolutionary. It was shortly, in his own language, “to abolish all private titles, declare all lands public property and lease them out to the highest bidders in lots under such conditions as would guard private rights to improvements.” This was, of course, the beginning of a plan to nationalise all lands. If, owing to the exigencies of state-craft, this plan

were either unsuccessful or not feasible, Mr. Henry George suggested an alternative plan of taxing land values and many economists favour this tax on land as the first step towards the Georgian ideal of the complete appropriation by the State of the whole annual value of the land apart from the improvements upon it.

Controversy raged around this question in 1909 and the Reviews and Journals of that year dealing with the Budget proposals of Mr. Lloyd George bear witness to the warmth of feeling generated in and the hopelessly divergent views held by competent authorities in this matter. The arguments against this taxation are as follows:—Though, no doubt, land differs from other subjects of property in various ways, and there is only a limited amount of it, and though private property in land must be subject to certain restrictions which will not apply to other forms of property, yet the imposition of a special tax is really a partial confiscation of the property of land-owners for the benefit of non-land-owners. The second argument against that taxation is that it is not true as often alleged that the land-owners do not bear their adequate share of national burdens. Take, for instance, the common case of houses built in large towns or urban areas on building leases where the free-holder or the owner of the ground receives a ground rent practically free of all rates and taxes. At first sight, this landlord appears to have come into an income free of all share of municipal, if not also, of Imperial burdens. The answer which has been attempted to this is that whilst ground-rent is the price paid for the use of land, the rent is fixed by agreement and such agreement takes into account the present and prospective charges upon the land. If the ultimate landlord were made liable for part of the charges, he would want a higher price or ground rent and the lessee himself would be willing to pay a higher price, because his own liability for taxes would be reduced.

The main argument in favour of this tax is that land-owners derive special and unique advantages from Municipal

expenditure and that therefore there is no injustice in asking them to make a special or extra contribution towards meeting it. This, of course, does not really arise out of the discussion on the national taxes on land values such as were contemplated by Mr. Lloyd George in his historic Budget of 1909.

What is urged against this theory is that it is a mistake to suppose that the landlord contributes nothing to local rates; for, it is said that the burdens which rates or local charges impose upon his property reduce the rent which the landlord can get for his land. If it is maintained that during the period of a long lease municipal improvements are made to which the landlord contributes nothing and that by such improvement the land is increased in value, it is answered that the increased value itself does not arise until the expiry of the lease and during the continuance of which the benefit in the value of the land goes to the lessee or his subtenants, whilst at the end of the lease the landlord takes up not only the increased value but the increased burdens. It is also stated that this argument overlooks the risk of a loss. Take Madras, for instance. It can be stated with considerable show of truth that landowners in Mylapore or in other urban areas do not contribute an adequate share of Municipal burdens, taking into consideration the increased amenities of life which they enjoy owing to Municipal improvements. Assuming the facts to be true, it is urged by the advocates on the other side that owing to reasons which it is sometimes easy to analyse and sometimes not, all urban or even suburban lands are not always certain to rise in value. For instance, Tondiarpet was an extremely fashionable quarter about thirty years ago and now the value of property there has fallen tremendously—some say owing to Municipal mismanagement. There have been shiftings of fashion and caprice and the value of land in particular localities has varied proportionately. (This is seen by the variations of value on the Poonamallee Road, Egmore, during the last few years.) It is further stated, and perhaps with great justice even in Madras, that

all improvements in the value of land are not due to Municipal enterprise. The earnings of men engaged in trade favourably affected by the war have been notoriously responsible for the payment of fancy prices in recent cases. This phenomenon of cause cannot be treated as persistent. As a matter of fact, in a number of districts land remains stationary in value for long periods. So far as the Municipal enterprise doctrine is concerned, it is urged that some land may actually depreciate in value on account of Municipal action and if increases are to be taxed, decreases ought not to be left out of consideration. The argument that was adduced most prominently by Mr. Lloyd George during the discussion of his Budget, namely, that the landowner is a kind of parasite upon the community, is equally applicable to the owners of railway shares or Government stock. In theory, no doubt, as was pointed out by Sir Robert Giffen in his *Economic Enquiries and Studies* (Vol. I, "Taxes on Land"), there is nothing to be urged against the idea that the soil of the nation is primarily the property of the whole nation and if any revolutionary changes are to be attempted negating all rights of private property in land and all rights to exclusive possession, much may be said in favour of the view that a charge may be levied so as to limit the privilege which a private owner has in the way of holding lands. The more progressive the community, the greater will be the un-earned increase of rent.

The great economist, J. S. Mill, took the view that instead of the present intricate methods of taxation, the state ought to institute enquiries at definite intervals as to the augmenting of rentals on lands; but the objections to this doctrine have been very pertinently and forcibly pointed out both by Sir Robert Giffen and thinkers like Bastable. To us, in India, the idea of the taxing of unearned increment may appear novel; and, in fact, it is possible to urge that under present conditions, say in Madras, the imposition of such a tax is uncalled for; but there is no gainsaying that the tendency of

European thought has been, in the main, in favour of such a levy. Ground rents, says Adam Smith, and the ordinary rents on land are perhaps the species of revenue which can best bear a peculiar tax imposed upon them. He bases this view on the footing that property in land is a kind of monopoly and that all kinds of monopoly are most proper subjects for taxation. Professor Charles Gide, an acknowledged French authority on Social Economics, points out that the principal cause which acts on the value of land is the growth of population, since the more people there are, the more food-space and lodging-space are required, but increasing wealth, the building of roads and railways, the construction of tramways and other conveniences, the opening out of parks and gardens, the rise of large cities, even the development of public order and security increase the surplus value of the land—what the English Economists call the unearned increment. (*Vide* Gide's Political Economy, page 590.)

Conceding all these, there remain certain serious difficulties to be dealt with before such a system of taxation is attempted. What are the obstacles in the way of the levy thereof? They are these. First, it is not possible to draw a sharp line of demarcation between pure rent and what may be called private rent. Adam Smith himself has to admit that the ordinary rent of land is due purely to the attention and good management of the landlord. In new or virgin countries, no doubt, all the gain from land would be profit and not rent; but as society gets older and more advanced, the investment of the landlord's capital on the land and the improvements thereon make the problem much more complex. Can individuals be asked to give up surplus gains unless they are guaranteed against losses? Which landlord will care to develop his property with the certain consciousness that his surplus will be appropriated by the State while he has no security for a return on his outlay? The second and more formidable difficulty to be combated is this. Granted that the present system of private ownership of land is to continue,

granted also that there is a developed organisation such as obtains in most civilised economic communities, the title or the ownership in this unearned gains or surpluses is always in a fluid state and in the process of transfer and future values are also estimated in the prices given, so that the price of land is not necessarily what may be called the present value of the land but also takes into account anticipated future movements of rent and capital. To do adequate justice, therefore, could only be by taxing every increase immediately on its being noticed. But this will be a hopeless task. The conclusion which is therefore forced upon one is, that such special taxation on values should be restricted to the clearest and best established cases where there could be no controversy as to the existence of something approximating to a monopoly. For the rest, it is the wisest policy for the State to rely upon the increased productiveness in the shape of normal taxability that this increased wealth will inevitably bring about. A further differentiation will have to be made as between public finance and local finance in this matter. Take for instance any Municipality or any small district. Many important services rendered by such local areas can be dealt with on the rule of payment by a person for benefits received, such as water-rates, lighting charges, drainage and scavenging charges, etc., where really the citizen pays for the supply of certain useful commodities or services.

It is in relation to this branch of inquiry that the betterment theory of taxation emerges into view. Even here the process is far from clear. In addition to the services rendered directly, there is a kind of advantage accruing to the whole society which strictly all must bear. Further, some of the duties performed by local Governments or local bodies are for national benefit. It has therefore to be considered what proportion of the charges have to be divided between owners of land, possessors of capital including houses and those who get advantages from such public services. If the occupier of a house who looks upon local taxation as a portion of the

price for the advantages he receives, finds that any services are beneficial to him, he bears the tax as a payment for the increased advantage; but where there is heavy local taxation without increase in advantages, the demand is diminished and re-acts unfavourably upon the house-owners, the result being that ultimately the amount of money employed in such investments will be reduced. This phenomenon has been perceptible in the town of Madras in the matter of decrease of house values where either the water-supply or the lighting has become deficient or inferior in quality (*e.g.*, Puraisawakam). Let us consider the case of localities like Lloyd's Road, Mylapore, where a new street has been opened, or certain other localities in Madras where insanitary buildings have been removed. These processes may, no doubt, add greatly to the selling price or the rent of adjacent property and it may be that sometimes the fortunate owner of land in the locality discovers that his wealth is greatly increased by the action of the Municipality. In such cases there seems to be very little injustice indeed in insisting that where there is a special gain there ought to be a special tax cheerfully paid. This, in the language of economists, is known as taxation on the betterments. In his monumental work on Public Finance, Dr. Bastable, at page 402, puts the case thus: "When property is improved or in current language, bettered, there is some reason in calling upon the owner to pay the cost of that improvement" and he points out that it has been reserved for the State Legislatures of the American Union to develop this theory to its logical conclusions. They, under the title of special assessments, impose charges on property that has gained through Municipal enterprise, the idea being that "where there were outlays incurred for the advantage of a limited class of owners, they may be asked to pay for the peculiar advantage they have obtained."

Objections have been advanced even to this form of taxation. Firstly, that very different ideas may be held by the Local Bodies concerned and the owners of the bettered

property as to the utility of the benefits. Secondly, that to attain proper results, a careful judicial enquiry before a competent and impartial tribunal is necessary. There is however no denying that the advantages outweigh the disadvantages in respect of this form of taxation, the condition being that the proof of the advantage must be very clear. And in bringing about such taxation, great care ought to be taken that any increase due either to the labour of the landowner or to capital advanced by him is not touched; for, if the landlord is so touched, the tendency will be the discouragement of all initiative or progress.

In Germany, it is noteworthy that in spite of the restrictions imposed on the liberty of the individual in many matters, the latitude and power of initiative which the Municipalities exercise, in the language of Mr. W. H. Dawson, by prescriptive right rather than by formal permission, are so extensive as to be without theoretical limits. (*Vide* Municipal Life and Government in Germany, 1914 Edn., chaps. 14 & 15.) The urban localities are also free from all possible restriction by the Ministers of State. Let us consider how they have faced these problems of taxation on land values and unearned increment. Whereas in England controversy has raged over the proposal to tax urban land values for local purposes and whereas the London County Council only very recently tried to obtain powers for dealing with "betterments" and whereas moreover the taxation of unearned increment has been in England introduced only as a national rather than local measure, it is noticeable that as far back as 1893 by the Communal Taxation Law of that year, the Prussian Government directed the attention of the local authorities to the unearned increment tax as a proper source of local revenue, and 'as a means of checking speculation in land values.' The idea was to relieve prospectively the pressure of the problem of housing. The principle of the levy of the tax is that the taxable increment, in the language of Dawson, is held to be the excess price or value on re-sale or transfer over the price or value of the previous change of ownership. This is the

principle adopted in sections 126 and 127 of the Draft City Municipal Bill. Not only in Germany but also in most of the States in America and other countries where this mode of taxation has been attempted, the seller is allowed to deduct all expenses arising out of permanent improvement including the cost of road-making and sewage connection, the exception being that expenditure on new buildings is not liable to deduction when covered by insurances. Another point to be noted in regard to this tax is that in most of the countries where it is levied, land which has been built upon is taxed at from $1/3$ to $1/2$ less than land that is free; and further the increments which do not exceed 10 per cent. or more (in some cases 15 per cent.) of the earlier value is exempted altogether from taxation. Moreover, the tax is not levied, in the case of the transfer of property by inheritance, or gift *inter vivos*, and values due to the natural properties of the land, namely, discovery of coal, stone, ore and springs are not taxable. The difficulties in the way of imposing taxes of this description have already been pointed out, but the most serious one to many minds is the elaborateness of the calculations and the complexity of the methods by which the tax is proposed to be imposed. This feature will be easily recognised on a mere survey of the provisions of clauses 16 to 20 of the Draft City Municipal Bill (Schedule IV). The tax thus infringes the well-recognised ideal that the incidents and the amount of taxation ought to be such as can be easily comprehended by the tax-payer. On the whole and on a review of the pros and cons of the problem the least indefensible tax would appear to be what has been discussed above as the betterment tax or special assessments in the American phrase. Building sites which increase in value owing to the laying out by the local bodies of alignments may be taxed on a much higher scale than others which bear the simple land-tax. Even here the difficulty of valuation is often insuperable. In many countries, however, there is a more definite and easily ascertainable variant of taxation, namely, that property owners are to contribute towards the cost of executing and maintaining

works necessary in public interests from which they derive special economic advantages, such contributions being in proportion to the advantages enjoyed, the said works including the clearing out of congested areas, laying out of parks and recreation grounds, etc., in the vicinity.

To summarise; a sharp distinction must, of necessity, be drawn between Imperial revenues and revenues to be raised by local bodies. Taxation of commodities and income-taxes are better suited to the Imperial than to the local body. The only possible exception is in the case of octroi duties which are confined to towns, but which are getting more and more out of favour in progressive societies. Taxes are always levied for local purposes on property and occupations carried on in the locality. Under this come the house tax and the duties called license taxes in respect of occupations which can be fairly readily collected and do not in the main discourage industry. With regard to the taxable nature of the unearned increment, the considerations above stated indicate that the betterment theory of taxation is superior both in efficacy and in principle to any other. In any event, in taxing the unearned increment, the idea ought not to be lost sight of that Adam Smith's famous maxims hold good as much to-day as they ever did, namely, that a tax which each individual is bound to pay ought to be certain and not arbitrary and the form of payment, the manner thereof and the quantity of incidence ought to be clear and plain to the contributor. Secondly, the subjects as stated ought to contribute as nearly as possible in proportion to their respective abilities.

The Milk Problem.*

A Lesson from Denmark.

[BY W. J. HARVEY AND C. REPIEN, AUTHORS OF
Denmark and the Danes.]

JUST now, when the high price of milk—a food which is essential to the health and well-being of at any rate the children—is a matter of very serious concern, the method

* Reprinted from the Chambers's Journal.

of the treatment of this problem in other countries is at least interesting, and may be very helpful. For instance, it is questionable whether the British system of the distribution of milk is the most satisfactory. With a very restricted labour market, a system which sends down one street, say, half-a-dozen different milk-carts in the early morning, and possibly twice later during the day, is to say the least, wasteful in labour, time, and material. Why not deal with the daily supply of milk as the Post Office deals with our letters? A method of delivery which prevents overlapping, and which is thus economical as to labour, the wear and tear of appliances, and materials, would at once reduce the cost to the consumer.

Nearly every large town in Denmark possesses a Company or Corporation, partly philanthropic in its aim, which exists to supply the populace with pure milk and cream at the cheapest possible rate. The most remarkable of these concerns is the celebrated milk supply company of Copenhagen, which has a capital of about twenty-five thousand pounds. This Company limits its dividends to 5 per cent. although it could easily pay four times that amount, or more. The surplus over and above 5 per cent. is devoted to improvements in, and additions to, the machinery, equipment and buildings. There is also a certain amount of free distribution of milk to the poor. The company provides milk in four different grades: whole milk, half-skimmed milk, children's milk in sterilised bottles, and infants' milk specially prepared under the most stringent precautions. No cows are kept, the original supplies of milk being obtained from selected farms in the Copenhagen district.

The milk on arriving at the company's depôt, is tested and emptied into small vats, which are standing near a larger vat containing a mixture compounded of one part of salt water to two parts ice. This mixture is slowly pumped into lofty coolers, and the milk is then passed over the coolers and run into a tank, whence it is driven through a special sterilised filter made up of gravel and of cloth sheets. From the filter it passes into a large clean tank, when it is ready for distribution.

The cream, which has been separated by steam driven Alfa separators, flows over cylinders fitted with ice to an ingenious machine which has six long pipes, through which it passes into sterilised bottles. Nothing—milk, cream, butter, or cheese—is ever touched by the hand, and the extreme care with which the infants' milk is prepared has undoubtedly resulted in the saving of thousands of young lives, and contributed to the notable decrease in the figures of infant mortality for Copenhagen and the surrounding districts during the past thirty years.

A very efficient system of distribution has been devised by the company, and this attracted the special notice of Sir H. Rider Haggard during his inspection in 1910. He writes: 'All being prepared, the milk is distributed in the following fashion. Two hundred cans, each containing one hundred pounds Danish, are sent to the hospitals. Some go to the shops the company possesses while the rest is hawked by means of forty-four vans, which deliver it from door to door. These vans, which I saw, are extraordinarily well contrived and adapted for this purpose. The cans of whole and skimmed milk are placed on either side of the front portion of the vehicle, and locked up in a position that the milk can be drawn through taps which are specially protected from dust. It cannot be otherwise got at even by those in charge of the van. Over the taps are written the quality and price of the milk. In the rear compartment of the van are trays which exactly fit the cases that hold the bottles of cream and of children's milk and butter milk, the prices of which are inscribed over the door. These trays in summer are covered with a layer of ice. To draw its vans, the company keeps a stud of eighty horses, which I saw lying or standing on moss litter in beautiful stables. Not far from these stables are the ice-houses, where is stored the specially collected ice, three thousand tons of which are used every year. Much might be written about this company, but perhaps enough has been said to convey some idea of its

remarkable character and the perfection of its management. It was the first society for the distribution of pure milk in the world, and I believe that even now although some others exist in different countries, it remains the most important. If there is anything on the same scale and organised in quite the same way even in the vast city of London, the fame of it has not reached me. I suggest that here there is an opportunity for enterprising and philanthropic vendors of milk in all the great towns of our country. Only could milk and cream thus collected and treated be sold at similar cheap rates in England. The charges made to the house-holders in London and other English cities do not seem to suggest that this would be the case. The London price [that is, in 1910] for new milk is a little under double the price for the same article in Copenhagen, whereas the difference in the cost of cream is enormous. The Copenhagen Company charges one shilling and two-pence half-penny per litre for its best cream, or, let us say, one shilling and six pence (an outside figure) per quart, as against four shillings charged by the London dairies. Surely this is a matter that the Corporations of cities might consider in the interests of the health of the population, and especially of young children. If a Corporation may supply water or electricity, why should it not supply milk ?'

Mr. Busok's company, which started business in 1878 in hired premises, now owns eleven thousand three hundred square metres of ground, of which five thousand six hundred square metres are occupied by buildings and plant. Its daily sale of milk amounts to over twenty-thousand quarts, and it employs a staff of one hundred and thirty men, one hundred and forty women, and two hundred and thirty boys. In cases of illness all the employés, as well as members of their families, receive gratuitous medical treatment without any deduction of salary. All the cows used by the company are examined by veterinary surgeons twice a month, while cows supplying infants' or children's milk are tested every half-year with tuberculin. The animals are kept on pasture

as long as possible. Immediately after the milking operations have been concluded, the milk is cooled down to 5 degrees centigrade, but no pasteurisation is permitted, as this is now generally admitted to be an unnecessary proceeding, and fraught in some instances with considerable risk to be public, as, although it effectively destroys the bacilli of disease, it at the same time reduces the nutritive properties of untreated milk.

In an article published in *MacClure's Magazine* for December 1908, a contributor very succinctly stated that 'the dairyman who pasteurises good milk is a fool, and the dairyman who pasteurises bad milk is a rogue. The only excuse for pasteurisation is that it is the lesser of two evils, and the Copenhagen Milk Supply Company has shown the world that it is unnecessary.'

In the well-known American Review *The Outlook*, Professor J. E. Pope, commenting on his visit to Copenhagen in 1906, stated that in his judgment Copenhagen was the capital where milk is the best and cheapest. He noted particularly the importance placed upon the delivery of milk at a very low temperature, in contrast to the common practice in America and England of delivering it warm, in which case it deteriorates rapidly.

During the past thirty years the consumption of milk in Copenhagen has increased by a much greater ratio than the proportionate increase in the population would lead one to suppose. At the present moment the average consumption equals almost exactly one pint a day per person. In London and Manchester the allowance is less than one quarter of this quantity. The abundance and the cheapness of good milk has undoubtedly contributed in no small measure to the extraordinarily rapid growth of the temperance and allied movements in Denmark, as it has been clearly pointed out in the Press, the churches, and the schools that even ordinary buttermilk contains four to five times the food value per volume

of beer. Bavarian beer, for example, contains only one half-pint food-value of a quart of whole milk. A quart of Bavarian beer costs twenty-seven öre (slightly more than three pence half penny), while a quart of whole milk can be purchased in Copenhagen for sixteen öre (about two pence). From the point of view of cost, therefore, milk yields better value for money; while, if the relative food values and nutritious properties are worked out, it can be demonstrated that Bavarian beer, which costs twenty-seven öre, should only be valued at four öre.

One of the most important of the appliances employed by the Copenhagen Pure Milk Supply Company is known as the hygienic milk pail, the object of which is to collect and store the milk so efficiently cooled that it will keep long enough without pasteurising or other similar treatment. The apparatus consists of a cylindrical tinned steel pail, in the bottom of which is placed a pear-shaped copper receptacle, which is closed by means of a flat lid under the bottom of the pail. When the pail is in use the lid is unscrewed, the pail turned upside down, and the receptacle filled with a mixture of one part common salt to three parts of crushed ice or snow. The cow is milked straight into this pail, and the milk thus loses its cow-heat. The micro-organisms are by this method immediately placed in an environment which precludes development, while the milk does not lose any of its nutritive properties.

This rapid cooling process has produced some very notable results. Dr. Müller of Leipzig instituted a series of valuable experiments with Mr. Busok's hygienic pail, of which we will quote one only. A certain cow, which yielded twelve quarts of milk, was milked from the two right teats into Mr. Busok's pail, and from the two left into an ordinary pail, the specimens being placed side by side in bottles in a room at a temperature of fifteen degrees centigrade. The milk from the ordinary pail became sour and thick after eighty-two hours; that from hygienic pail did not become sour until after having been kept for one hundred and forty-four hours,

In connection with the rapid cooling process invented by Mr. Busok, it may be noted here that his company uses upwards of eighteen thousand pounds of ice daily, and that the whole of this enormous quantity is produced and crushed on the premises by a Danish Diesel Oil Engine Motor.

The Calcutta Corporation.

I. Motor Lorries.

THE Deputy Chairman, in asking for the sanction of the General Committee for the posts of four Motor Lorry drivers, three on Rs. 100 each per month and one on Rs. 60 per month, submitted a report on the working of the lorries. The report deals with the work done by the lorries for removal of carcases, which had hitherto been done by dome carts. According to his report, one Thorneycroft Lorry was sanctioned and has been in use since 1st April 1915. The running costs for $10\frac{1}{2}$ months amount to Rs. 4,900 including staff for removing the carcases. If to this amount Rs. 1,600 is added for depreciation, the total cost of one lorry for the year works to Rs. 7,300. It is proposed to use two lorries when the cost will be Rs. 12,000. The cost of the old dome cart establishment was Rs. 14,700 a year.

The introduction of the motor lorry has not only resulted in more efficient service at less cost, but has also had a striking effect on the receipts for the removal of carcases. Under the old system this stood at Rs. 200 per month, whereas under the lorry arrangement it has gone up to Rs. 620 per month, and it is expected that under the personal supervision of the Deputy Chairman, it will go up to Rs. 900 a month; so that if two lorries were employed instead of one, the Corporation expect to spend, instead of Rs. 14,700 minus Rs. 2,400, *i.e.*, roughly 12 thousand rupees net under the old system, Rs. 12 thousand (cost of maintaining two Motor Lorry Establishments) minus about nine thousand, *i.e.*, three thousand rupees net under the new system. The Committee willingly sanctioned the staff asked for.

We would invite the attention of the Chairmen of Municipalities to the gratifying results obtained by the substitution of motor service for the old fashioned cart service, which should be an inducement for its adoption for the various forms of service which has to be performed by a municipal body. In Madras City, the improvement in conservancy has been noticeable since the introduction of motor lorries.* If properly worked the motor service will be found more satisfactory in every way than the old cart service.

II.—Roads.

At the request of the European Association, an Expert Roads Committee was appointed under the orders of Government to consider the problem of road construction in Calcutta. The Committee consisted of the following members: (1) The Chief Engineer, Calcutta Corporation, (2) The Chief Engineer, Improvement Trust, (3) The Superintending Engineer, P.W.D., Presidency Circle, (4) The Chief Engineer and Secretary to Government, P.W.D., Bengal, (as President.)

The Committee was directed to examine and report on the best methods which should be adopted to bring the roads in and around Calcutta up to an efficient standard to carry the various forms of traffic, giving special consideration to those roads on which heavy motor traffic is permitted.

The report has now been submitted. The many and various forms of surfacing, such as tar macadam, cement and reinforced concrete, etc., were considered and the conclusion arrived at was that some form of asphaltic carpeting similar to asphaltum as supplied by the Standard or Mexican Oil Companies was the most suitable for the surfacing of roads in Calcutta. The cost at the present rate of laying this coat is slightly less than that of laying tar macadam on an existing stone metal road. The latter coating is what is now being used in Calcutta. In addition to surfacing with the proposed materials, the Committee have recommended that all roads, over which it is known that motor lorry traffic will pass should

* Vide Local Self-Government Gazette, Vol. III, p. 148.

first be constructed with a foundation of a 9" hydraulic lime concrete before surfacing over with 2" asphaltum as supplied by the Standard or Mexican Oil Companies. Then follows a statement classifying the roads in Calcutta under two heads, *viz.*, A class and B class. The new surfacing material is to be used for the A class roads.

The above scheme of re-construction and re-surfacing is estimated to cost Rs. 21½ lakhs, and it is proposed to spread this expenditure over a period of five years.

The Calcutta Corporation have approved generally of the recommendations of the Expert Roads Committee including the scheme of reconstruction, and have in addition suggested the consideration of raising the maximum license fees on heavy motor vehicles when the Municipal Act is to be amended.

We agree that roads with heavy traffic should be constructed with a satisfactory foundation. This point is now being increasingly recognised all over the world and we are glad that Calcutta like Bombay has set the example in this respect.

In a recent Report submitted to the Corporation, the Executive Engineer of the Bombay Corporation, observes: "The absence of proper bottoming or subcrust under almost all the roads combined with inefficient drainage is in a large measure responsible for the frequency with which the roads go out of order. The majority of the roads have a coating of only 3" to 4" of metal, which is very inadequate to stand the present heavy fast motor and cart traffic which has of late considerably increased on account of war conditions and the expansion of the City's trade. The road surfaces have consequently suffered greatly especially during the monsoon. An endeavour has been made by heavy metalling and proper cambering to improve and strengthen many of the roads and make them capable of sustaining heavier traffic without undue deterioration, and this has proved so far successful, but in the case of main roads subjected to heavy

motor traction it is essential that the foundations should, in the first place, be made substantial and unyielding.”

As regards surfacing, we consider it is still a matter of opinion. However, we will watch with interest the results of the Committee's recommendation.

When will Madras and other cities and towns in India take up the question of the construction and maintenance of roads in right earnest? It is not so much a question of increased grants as how best to use the available funds. We fear there is not the same earnestness, enthusiasm and interest displayed in the matter of road engineering in this Presidency as in parts of Bombay and Bengal.

Use of Lime for Filtration of Water.*

THE use of Alumino Ferric, Aluminium Sulphate, Alum Cake or other soluble Aluminium Compound as a coagulant, for precipitating very fine suspended matter in water, previous to filtration, is only possible in a water which has an alkaline reaction. Most waters have this reaction owing to the temporary hardness of the water.

During the dry weather season there is a fairly large amount of temporary hardness in the Hooghly water, but during the rainy season it is very much diminished, so much so, that frequently the margin necessary for acting on the Aluminium Compound used is so small that it often almost vanishes. If it should vanish it would mean that an excess of Alumino Ferric or other salt used would remain in the water, and would therefore be wasted, but what is of more importance, this excess would have a deleterious action on our pipes and pumping plant. I therefore strongly recommend that for the future, during the period when Alumino Ferric is in use, about two grains per gallon of a good, freshly slaked, *fat*

* Being a note by the Chief Engineer of the Corporation of Calcutta. The Corporation accepted the recommendation of the Chief Engineer and resolved that for the future during the period when Alumino Ferric is in use, about two grains per gallon of good, freshly slaked, *fat* lime should be used.

lime should always be used. This will ensure getting full value from the Alumino Ferric, and should cost no more money, as the amount of Alumino Ferric to be used can be diminished, by about one quarter of the weight of lime used per gallon, as the lime itself has a coagulating action similar to Alumino Ferric, but not nearly so powerful. If this is done it will also prolong the life of the steel in the elevator reservoir and the steel pipe very considerably by preventing the possibility of any excess of Alumino Ferric remaining in the water.

The Health Officer's opinion was as follows:—

“I see no objection from a sanitary point of view to the addition of 2 grs. of lime per gallon, *i.e.*, about 3 parts per 100,000. When combined with storage, “Liming” has effected a remarkable improvement in polluted water, apart from its action as a coagulant (C.f. Aberdeen referred to in the *Medical Officer* of 16th September, 1916.)”

Responsibilities of Municipal Work.

Lawyers and Public Life.

IN the Birmingham Council Chamber an interesting function took place recently when the solicitors of the city and district met to do honour to one of their profession in the person of the Lord Mayor (Alderman A. D. Brooks). They presented the Lord Mayor with a tastefully bound and illustrated address congratulating him on his election, expressing admiration of his patriotism in consenting to accept office in the present difficult times, and gratefully appreciating services rendered to the community during a long period.

Mr. Registrar Lowe, in making the presentation, said Alderman Brooks was the tenth practising solicitor whom his fellow-citizens had delighted to honour by electing to the dignified office of Chief Magistrate of Birmingham. For fifteen years as Councillor and Alderman the Lord Mayor had given his time and abilities ungrudgingly to public work, and

had been Chairman of the Watch, Finance and Labour Committees. It was common knowledge that to Alderman Brooks's legal training, his aptitude for public business, and his knowledge of men and affairs when acting as Chairman of the Negotiations and Parliamentary Sub-Committees the success of the last city extension scheme was in a large measure due. Whatever might be said of lawyers—and, like mothers-in-law, unkind things were sometimes said about them—the practising solicitor brought to public life three great qualifications—firstly, a healthy distaste for mere rhetoric; secondly, a consciousness that there were two sides to every case; and, thirdly, the ability to disentangle the real facts from the fringe of a case. To the younger solicitors in the City Council Alderman Brooks's career, undertaken without any motive of selfish ambition, should prove a high incentive. On behalf of the solicitors of Birmingham and district who had learned to honour and respect the Lord Mayor for his courtesy, thoroughness, insight, and breadth of view, he (the Registrar) assured him that he had not only their good wishes but their kindly feeling and affectionate regard.

The Lord Mayor, in reply, after expressing his profound sense of the honour done him, said he was elected to office in a very difficult period, having no time to make any preparation for the work that lay before him or even to arrange his professional affairs. He felt that, as the call came, he must respond to it and make what sacrifice was required. It was not an easy task he had undertaken. The responsibilities of the office were greater now than ever, for to the ordinary municipal work a large amount of extra work was imposed on the municipality in connection with matters arising out of the war. In these circumstances it was peculiarly gratifying to find that his election had given satisfaction to those with whom he had worked professionally for the last twenty-five years. It was sometimes said there were too many lawyers in public life, that they were too prone to talk and acted but little, and that they cultivated the art of speaking to such

an extent that they could make a plausible utterance on a subject of which they knew nothing. He (the Lord Mayor) thought the training and experience of a lawyer made him well qualified to take up public life. On the City Council there were twelve practising solicitors and one barrister, and the fact that these gentlemen had been elected and re-elected showed they possessed the confidence of the citizens, and should remove any kind of slur sometimes cast on the profession. He was the tenth solicitor elected to the office of Chief Magistrate in Birmingham. Since the incorporation the office had been filled for sixteen years by members of the legal profession, while since the Lord Mayoralty was created twenty-one years ago the office had been filled for a third of the period by a solicitor. In conclusion, the Lord Mayor said it was a great encouragement in times like the present to be assured he had the goodwill of the members of his own profession.

Novel form of water pump.

TOO many different forms of pump have been devised for lifting water and other liquids that the invention of any novel form of appliance for this purpose would seem almost an impossibility. Yet this has been done, and the device is of a very simple character. Most of us in our youth have stirred water round and round in a basin, and have noted how it rises at the ends while sinking in the centre. The new pump is based upon similar principles, an inverted cone-shaped pipe taking the plane of the basin. If the small end of such a pipe is dipped into a stream and rapidly revolved the water inside will rotate with it and rise to a certain extent. A plain pipe, however, slips through the water instead of getting a grip of it; and to obviate this drawback it is fitted internally with radial vanes which compel the water to rotate at the speed of the pipe, when it rises upward and overflows into a trough at the top. This effect is intensified by a screw propeller at the small end, which starts

the water on its upward journey. These pumps are said to be very efficient for raising water a few feet, as is required for irrigation purposes; while their simplicity makes them eminently suitable for service abroad in up-country districts where it would be impossible to effect repairs in more complete appliances. The pumps are fitted with telescopic legs which can be pushed into the ground at each side of a stream or dike, and adjusted to immerse the bottom ends to the correct depth.

—*Chamb. Jour.*

Moisture and Dust Resisting Properties of Painted Cement.

PORTLAND cement is used for numberless types of constructions from the concrete factory to the stucco dwelling. Its strength and durability are, however, offset by its unpleasing appearance especially during stormy weather, when it absorbs large quantities of water and becomes mottled and streaked. At such times the interiors of concrete buildings are apt to become damp and cold. The rough exterior surfaces will receive and retain particles of dust and soot deposited from the air.

When paint is applied to a concrete structure the exterior pores are filled, and a smooth, rubber-like film results that prevents the admittance of rain, according to Henry A. Gardner, speaking recently before the Annual Meeting of the Master House Painters' and Decorators' Association of the State of New York at Rochester. This alone, continues this authority, should constitute sufficient reason for painting cement constructions in every locality. The dust resisting properties and ornamental character of painted cement should be further consideration wherever there is civic pride. Fortunately, paint will wear well on cement provided the paint is applied when the cement is dry. When damp the cement should first be treated with zinc sulphate solution. Moreover, the same paints that give good surface on wood may be used successfully on cement.—*Scient. Amer.*

Scholarships in Secondary Schools under Public Management.

[BY AN EDUCATIONIST.]

[We invite the attention of Local Board Members (Madras) to the following memorandum by an Educationist and hope they will make a proper representation to Government so as to secure to the Boards their legitimate share of public funds in aid of Secondary Education.]

THE Government (Local and Municipal Department) has in its Memorandum No. 1258-1. L., dated 28th February 1917, called for a report as to whether, in case a system of Secondary School Scholarships is allowed to be adopted in Secondary Schools under the management of Municipal Councils and Local Boards, such Local Bodies will be prepared to meet the loss or additional expenditure that may arise in consequence of the system, from their own funds.

Such an enquiry on the part of the Government appears to be extremely unfair to schools under the management of these bodies. In fact, schools under such management ought to be entitled to preferential treatment, while at present they are being penalised on account of the management, in the matter of support from public funds.

The effect of the alteration proposed in the Grant-in-aid Code,—that of allowing for a reduction of a tenth of the fee income for purposes of Scholarships, in assessing the grants due from Provincial Funds,—will be that the Scholarships in schools under Private Management will be financed wholly or in part by Government, as the Government will pay towards the net cost of Private Institutions, varying from half to the whole of that cost. In justice to schools under the management of Local Bodies, these bodies should claim on behalf of the Secondary Schools that the Secondary School Scholarships therein shall receive the same measure of financial support from Provincial Funds as is accorded to the scholarships in Private Institutions. In order to see that such justice is done to these Local Bodies and their schools, these bodies should, in answer to the Memorandum of Government mentioned above, make a practically unanimous and unambiguous demand, that while they agree to bear half

the loss themselves, the Government should bear half the loss by a grant from the Provincial Funds in this behalf. If the Government should urge that its finances do not permit of Provincial grants to the extent of half the loss entailed by the proposed system, we should demand that the Government should allot the total amount available out of its educational allotments for the purpose of aiding the proposed scholarships, in due and fair proportion between schools under Local Bodies and schools under Private Management in proportion to their numerical strength. Anything less than this would be exceedingly unfair to Local Bodies and would amount to a gross partiality towards Private Aided Institutions to the detriment of schools under Local Bodies.

That the above is not an exaggeration will become clear if the effect of a Government Grant to Private Institutions only, in aid of scholarships, be considered on the Educational Institutions in places where there are Institutions under Private Management competing with schools under the Management of Local Bodies. With the aid of Government Grant, the Private Institutions will be able to award scholarships, while owing to the absence of such grant and the insufficiency of the resources of Local Bodies,—most of these bodies have poor resources—they could not award scholarships in their own Institutions. The competition that would then arise between the two Institutions under these conditions would be extremely unfair to the Institutions managed by Local Bodies, in so far as the Private Aided Institutions would be able to draw off the best of the poorer students of the locality. It is therefore the duty of all Local Bodies to fight for a legitimate share of the Government Grant-in-aid of such scholarships, viz., they should claim from Government a fixed proportion—say a half—of the loss of income consequent on scholarships or at least such a proportionate share of the total grant by Government in this behalf, as would enable their Institutions to grant as many scholarships as would place them on a footing of equality with Private Institutions, *relative to their numerical strength.*

Female Education.

The following statement shows the Expenditure on female education from Provincial Revenues (Bengal) from the 1st April, to the 30th December, 1916.*

			Expenditure.	Budget Estimate.
			Rs.	Rs.
Inspectresses and Assistant Inspectresses	...	...	27,859	27,000
Establishment	...	...	833	...
Travelling Allowance	...	...	6,546	...
Contingencies	...	...	15,636	...
Arts Colleges for girls	...	...	30,045	45,000
High Schools for girls	...	...	72,161	1,05,000
Middle English Schools for girls	...	...	72,390	92,000
Middle Vernacular Schools for girls	...	...	2,264	41,000
Upper Primary Schools for girls	...	...	1,588	41,000
Lower Primary Schools for girls	...	...	13,064	16,000
Zenana Classes	...	..	10,125	13,000
Training Schools for Mistresses	...	...	20,493	32,000
Grants-in-aid for Indian girls	...	...	1,59,384	†
„ „ European girls	...	...	38,656	†
Grants towards building for Indian girls	...	...	23,055	†
Grants towards European girls	...	...	10,000	†
Grants towards furniture and apparatus for Indian girls	...	...	720	†
Grants towards furniture and apparatus for European girls	..	...	...	†
Other grant to Zenana education (Central gatherings)	...	...	2,054	1,460
Other grant to Female teachers' house to house visitation	...	...	7,295	6,690
Allowance to School Masters' wives	...	...	240	...
Grants to peripatetic needle-work teachers	...	...	384	1,180
Scholarships in the Bethune College	...	...	5,733	†
Girls' scholarships in the Secondary Schools	...	...	5,640	7,116
Miscellaneous charges for special Committee on Education of Hindu girls			518	...

* Note.—These figures are not complete, as the charges on account of female education are not in all cases shewn separately in the accounts.

† The figures cannot be separated from the lump grants to both male and female education under the respective heads provided in the budget.

The Madras Local and Municipal Conference, 1917.

THE following resolutions were adopted at the Madras Local and Municipal Conference held on the 17th and 18th March 1917 :

Financial Resources.

2. This Conference is of opinion that the present financial resources of Local Boards and Municipalities are very inadequate and that, in order to meet their financial needs, it is necessary to supplement their revenues from local taxation by fixed assignments of a definite portion of Provincial revenues and by fixed grants-in-aid.

3. This Conference is of opinion (a) that the present financial system should be so modified as to provide for a regular system of subventions and grants-in-aid to local bodies on a definite basis and that as a beginning a definite proportion not less than one-fifth of the excise revenue realised within the limits of each Municipal and Local Boards area, be annually assigned to the local body concerned or in the alternative to impose an equivalent surcharge on the excise revenue.

(b) That the grant-in-aid paid to local bodies for education and medical relief should be so systematised as to enable local bodies to reasonably expect annually from Provincial revenues a definite proportion of the expenditure under the above two heads.

4. (a) This Conference is of opinion that the funds required for the construction of the District Board Railways in this Presidency should be found by the Government of India and that the Local Governments should be permitted to place the amounts annually required by the Local Bodies for this purpose on the Provincial Loan account ;

(b) that the question of financing District Board Railways in this Presidency is one of public importance and should receive very early attention.

(c) that better facilities should be afforded to local bodies to obtain loans for the expansion of their work ;

(d) that the period of repayment should not be less than 30 years ; and

(e) that public funds should be lent to local bodies for the purpose of financing co-operative housing schemes.

5. This Conference is of opinion that the cost of the maintenance of trunk roads be met from Provincial funds, as recommended by the Royal Commission on Decentralization.

6. This Conference approves of the levy of the following taxes :

(i) a terminal tax and a pilgrim tax wherever they can be levied ;

(ii) the imposition of the profession tax in Municipal areas up to a maximum of Rs. 250 and a surcharge on income-tax in non-Municipal areas ; or the abolition of the profession tax in Municipal areas and a surcharge on income-tax in Municipal and non-Municipal areas ;

(iii) a water and drainage tax in Unions at a rate not exceeding 4 per cent. on the rental value ;

(iv) the introduction of the principle of rental valuation of houses in Unions at a rate not exceeding 4 per cent ;

(v) an education cess not exceeding one and a half per cent. on the rental value of houses so as to make up one-third of the total expenditure on elementary education, provided that the Government is willing to contribute two-thirds of such expenditure in any Municipal area.

District Boards.

7. (a) This Conference is of opinion that District Boards should, in addition to the powers they now possess, be conceded the power of expressing their opinions on questions of general administration affecting their districts ;

(b) that the experiment of appointing non-official Presidents should be extended to District Boards without any further delay.

8. This Conference urges on the District Boards and Taluk Boards to examine the proposals and frame further proposals for decentralization thereon.

9. (a) That the administration of the Taluk Boards should be completely handed over to non-official Presidents and Vice-Presidents.

(b) that the official element in the Local Boards and Municipal Councils should be done away with and the control of Government should be exercised from outside.

Taluk Boards.

10. (a) This Conference urges that Taluk Boards should control the subordinate engineering establishments working in their respective areas, subject to the technical control of the District Board Engineer ;

(b) that the jurisdiction of a Taluk Board should be generally confined to the Revenue Taluk in order to ensure local knowledge and to stimulate local interest in the administration of Taluk Boards ;

(c) that the Budgets of Taluk Boards should not be incorporated in the Budgets of District Boards ; and Taluk Boards should be placed on an independent footing in this respect. The Taluk Boards should have full power over their budgets and expenditure ;

(d) that the Taluk Boards should have the right of addressing the Government on any matter of administrative importance, as in the case of Municipal Councils ;

(e) that the members of a Taluk Board should be permitted to supervise the public works in their vicinity, subject to the general control of the President ;

(f) that Taluk Boards should, wherever possible, develop village agency for the execution of minor works ;

(g) that Taluk Boards should devote special attention to the extension of village site in congested areas, and a special annual grant should be made by the Government for this purpose.

Unions.

11. This Conference is of opinion that the present control of Taluk Boards over Unions is too minute and urges on the Taluk Boards to examine and frame definite proposals for enlarging the powers of Unions.

12. That Unions should be given some definite control over the management of the schools and markets in their areas.

13. That fees from the markets within the limits of Unions should be credited to Union funds.

Village Panchayats.

14. This Conference urges that

(a) Legislation of a permissive character should be undertaken for the constitution of village panchayats in areas where the formation of local fund unions is not feasible.

(b) That a village fund should be constituted for each village outside unions, and that at least one-sixth of the land-cess raised in each village should be placed at the disposal of each village to be spent on such purposes as the village panchayat may think proper.

(c) That panchayats be empowered if they so desire to levy a cess of 3 pies in the rupee to be solely devoted for village improvement.

(d) That all works relating to the improvement of water-supply, digging of wells, and the improvement of village sanitation should be entrusted to such panchayats.

Municipal Councils.

15. This Conference is of opinion

(a) that the system of a paid Chairman is to be preferred wherever it is necessary to appoint a whole time officer, to the Bombay system of a non-official Chairman and a Municipal Commissioner to be appointed by the Government.

(b) that power should be conferred on Municipal Councils to elect more than one Vice-Chairman ;

(c) that the post of Secretary should be retained but that the appointment should be made by the Chairman and the statutory powers now conferred on the Secretary should be withdrawn; and that the Chairman should be empowered to delegate to him some of the minor ministerial duties at his discretion;

(d) that a statutory committee should be appointed for education and power should be conferred on the Councils to appoint to such committees, persons not in the Councils;

(e) that the power of nomination now vested in the Government should be abolished and that the representation of minorities wherever necessary should be secured by the election of a suitable number of members to represent such minorities.

16. This Conference invites the opinion of Municipal Councils

(a) on the desirability of levying a small scavenging cess from all house owners instead of the present contract system, of private scavenging fees;

(b) on the imposition of a penalty for not paying taxes on the due dates;

(c) on the desirability of charging a fee for the issue of building licenses to be solely devoted to provide supervision in the enforcement of building by-laws.

17. This Conference urges on Municipal Councils (a) to frame suitable schemes for town extension, especially for the poorer classes and

(b) to start co-operative societies for the building of houses

(c) and to accord special concessions to stimulate the construction of sanitary dwellings, by way of exemption from ground rents and other fiscal charges, for specified periods.

Education.

18. This Conference is of opinion (a) that each district should be recognized as a unit of administration for elementary and secondary education and that the Local Boards should be placed in a position to co-ordinate the needs of elementary and secondary education in each district ;

(b) that Local Boards and Municipalities should be used as agencies for meeting the wants of secondary education, without in any way trenching the present expenditure on elementary education ;

(c) that local bodies should be more largely employed for agricultural experiments and education.

19. This Conference is of opinion (a) that local bodies should constitute education committees to co-operate with them and that a definite proportion of the revenues of local bodies should be spent on education ;

(b) that village co-operation should be secured for the expansion of education by the constitution of village committees to look after elementary schools.

20. This Conference urges (a) that legislation should be introduced so as to empower local bodies to introduce, with the approval of the Government, free and compulsory education in selected areas ;

(b) that 15 per cent. of the receipts of local bodies be spent on education ;

(c) that the subordinate inspecting agency be placed directly under the local bodies, but that it should continue as a provincialized service.

21. This Conference approves of the formation of an association for promoting the cause of Local Self-Government and watching the interests of Local Boards and Municipal Councils in this Presidency.

(a) That the Association shall be called the Madras Local Boards and Municipal Association.

(b) That all present and past non-official members of Local Boards and Municipal Councils and of Local Fund Unions shall be admitted as members on payment of an annual subscription of two rupees.

(c) The Association shall take all necessary steps to bring about an effective organisation to watch the interests of Local Boards and Municipal Councils and generally to take such steps as may be necessary to secure the steady development of Local Self-Government and improvement in local administration. The Association may in its discretion arrange for such meetings, conferences and deputations as may be necessary to secure the above objects.

(d) That an executive committee be formed to carry out the above objects.

Supplemental.

22. This Conference is of opinion that the time has arrived for conferring on Local Bodies complete freedom in the matter of expenditure and of framing of budgets and hereby appoints a Committee to examine the Municipal and Local Boards Acts and Municipal and Local Fund Codes and suggest necessary modifications in regard to the financial control.

An executive committee was formed for carrying out the objects of the Association with the Hon'ble Mr. K. R. V. Krishna Rao Bahadur, Zamindar of Polavaram, Mr. K. C. Desikachariar, Joint Editor, the *Local Self-Government Gazette*, and Mr. T. A. Ramalinga Chettiar, Vice-President, District Board, Coimbatore, as Secretaries and the Hon'ble Rao Bahadur M. Ramachandra Rao Pantulu Garu, Chairman, Municipal Council, Ellore, as President.

Legislative Intelligence.

[Imperial Council.]

FREE ELEMENTARY EDUCATION.

The Hon'ble Mir Asad Ali Khan Bahadur asked if the Government proposed to consider the advisability of making elementary education free, at least in Municipal areas in each

of the provinces, as soon as conditions permitted after the war was over.

Government replied that they had not under consideration any scheme for making elementary education free after the war, but that they did not wish to interfere in the discretion already possessed by Local Governments and Local Bodies to take such steps in respect of particular areas and classes when this might be considered educationally and financially desirable.

[Bengal.]

DISTRIBUTION OF AUGMENTATION GRANTS TO
DISTRICT BOARDS.

The Hon'ble Babu Bhabendra Chandra Ray asked :—

(a) Will the Government be pleased to make a statement detailing the terms and conditions on which the augmentation grant was made in favour of the District Boards by the Government of India ?

(b) What were the stipulations to which the Provincial Government agreed in this connection as regards the method of distribution among the individual Boards ?

(c) What is the principle on which the amount of the allotment of the augmentation grant to individual District Boards in any particular year is ascertained ?

(d) Does it bear any proportion to the cess receipts ?

(e) If so, will the Government be pleased to explain the process of calculation by a reference to the amounts of the grant for 1913-14 and subsequent years ?

(f) Referring to the figures given in reply to my unstarred question No. XLVII on the 13th December, 1916, will the Government be pleased to explain the reason why the augmentation grant has been showing a decrease since 1913-14 as compared with the amounts of the previous years ?

Government replied :—

“(a) & (b) When the augmentation grant was first made, the Government of India stated that they proposed at the

outset to leave the distribution of the grant to the discretion of the Local Government, but that later on it would probably prove desirable to make the distribution rateably. They directed that the District Boards should be instructed that, in utilising the sums placed at their disposal, expenditure on roads and bridges should have preference in all cases in which additional outlay on such works could be incurred with advantage. No other terms and conditions were laid down by the Government of India and there was no agreement between that Government and the Local Government.

(c) The Hon'ble Member is referred to the answer given to clause (b) of the answer to starred question No. 10 asked by him on the 23rd January, 1917.

(d) & (e) The amount of the augmentation grant is fixed at 25 per cent. of the net receipts from the road cess less the amount by which the net Public Works Cess exceeds Rs. 29,42,000. This latter sum is made up of the Imperial assignment to Provincial Revenues as compensation for the loss of the Public Works Cess and the amount of the equilibrium grant that was resumed when the Public Works Cess was made over to District Boards.

The calculations for the year 1913-14, and subsequent years were as follows:—

1913-14—		Rs.
Net Road Cess receipts	... ..	29,38,832
25 per cent. on above	... ..	7,34,708

The augmentation grant was, therefore, Rs. 7,34,708, but the amount was originally calculated at Rs. 5,84,496, and this amount only was paid in 1913-14. The balance was subsequently paid to District Boards, *viz.*, Rs. 15,000 in 1914-15, and Rs. 1,35,212 in 1915-16, the latter sum being made over to the District Boards mentioned in paragraph 13 of the Resolution on the working of District Boards for 1915-16.

1914-15—			Rs.
Net Road Cess receipts	...	...	29,44,888
25 per cent. on above	...	...	7,36,222
Deduct difference between Rs. 29,90,367 (net Public Works Cess) and Rs. 29,42,000	...	...	48,367
Augmentation grant	...	...	6,87,855
To which was added Rs. 15,000 arrears of previous year	...	...	15,000
Total	...	...	7,02,855
1915-16—			
Net Road Cess receipts	...	...	29,39,461
25 per cent. on above	...	...	7,34,865
Deduct difference between Rs. 30,79,788 (net Public Works Cess) and Rs. 29,42,000	...	...	1,37,788
Augmentation grant	...	...	5,97,077
To this was added Rs. 1,35,212 (above referred to)	...	...	1,35,212
Total	...	...	7,32,289
1916-17—			
Net Road Cess receipts	...	...	30,28,309
25 per cent. on above	...	...	7,57,077
Deduct difference between Rs. 32,75,431 (net Public Works Cess) and Rs. 29,42,000	...	...	3,33,431
Augmentation grant	...	...	4,23,646

(f) The augmentation grants for each year since 1913-14 have declined owing to the fact that the excess of the receipts from Public Works Cesses over the Imperial assignment made to Provincial Revenues as compensation for the loss of the Public Works Cess has increased in each year."

ALLOTMENT OF AUGMENTATION GRANT TO DISTRICT BOARDS.

The Hon'ble Babu Bhabendra Chandra Ray asked :—

(a) What are the terms of agreement between the Imperial and the Provincial Governments which permit the

latter to depart from the general principles of allotment of the augmentation grant to individual District Boards, as stated in answer to starred question No. 10 asked by me on the 23rd January last?

(b) On how many and what occasions were such departures made by the Government of Bengal since 1905, and in what particular manner were these departures made?

(c) Is there any instance on record in which a mistake in the calculation of the amount of augmentation grant, as referred to in answer to starred question No. 10 of the 23rd January 1917, was considered a sufficiently strong case to justify a variation from the practice of making rateable distribution; and do the rules or the understanding in this behalf authorise Government to make such variations on any such grounds?

Government replied:—

“(a) As stated in the reply to the previous question, there was no agreement between the Local Government and the Government of India.

(b) From 1905-06 to 1908-09, Government distributed the grant rateably to divisions, leaving the Commissioners to distribute it among the different District Boards in their divisions according to local requirements. A slight deviation from the principle of rateable distribution occurred in 1907-08 and 1908-09. In the former year the allotment to the Burdwan and Presidency Divisions was reduced by Rs. 2,262 and Rs. 541, respectively, the allotment to the Orissa Division being increased accordingly; and in the latter year the allotments made to the Burdwan and Presidency Divisions were the same as in 1907-08. From 1909-10 to 1914-15 the grant was distributed rateably by Government direct to different District Boards. In 1915-16 special grants were made for special reasons to particular District Boards, as explained in the answer to clause (c).

(c) The special grants amounting to Rs. 1,35,212, which were made in 1915-16, were justified by the exceptional

circumstances of particular districts and not by the mistake in calculation. As stated in the reply given to starred question No. 10 on the 23rd January, 1917, Government have the right to depart from the principle of rateable distribution in exceptional cases to meet exceptional circumstances."

[Bombay]

BIJAPUR MUNICIPALITY.

The Honourable Mr. Dattatraya Venkatesh Belvi asked :—

Is it a fact that the Collector of Bijapur has recently issued an order to the Bijapur City Municipality under section 173 (c) of the Bombay District Municipal Act, 1901, stopping all "further expenditure of any kind", "except for fixed recurring charges" without the Collector's approval, and that in consequence urgent sanitary works such as drains and improvements to public roads and the like have been suspended? Government replied:—

As the Municipality failed to provide sufficient amount in its budget in order to pay the charges due to Government in connection with the maintenance of the waterworks, the Collector pointed out to the Municipality its omission to reserve the amount due to Government before incurring fresh expenditure on other objects, and requested the President of the Municipality to stop further expenditure on works, the liability for which had not already been incurred, until an amount of not less than Rs. 30,000 had been accumulated at once and another of Rs. 15,000 before the close of the year. None of the works postponed were of an urgent nature.

[Central Provinces.]

MEDICAL EXAMINATION OF BOYS IN RURAL SCHOOLS.

The Hon'ble Rao Bahadur N. K. Kelkar asked if any arrangement has been made for the medical examination of the boys in the rural schools, and if Doctors in charge of the peripatetic dispensaries examine such boys?

Government replied :—

No arrangements have been made by the Education Department for the medical examination of boys in rural

schools. But from the reports of the working of the peripatetic dispensaries recently established by the Medical Department in three districts it is found that the Sub-Assistant Surgeons in charge have been inspecting village schools when on tour.

The Hon'ble Rao Bahadur K. G. Damle asked if the Government will impress on the District Councils or Boards in the Central Provinces and Berar, or more especially on the latter, the desirability of appointing qualified men for the medical inspection of pupils in primary schools and the primary school buildings in District Board areas?

Government replied :—

Government does not propose to take action in the direction indicated in the question at the present time. District Councils and Boards must regard, as the first claim against their funds, the improvement of the pay of their teachers and the expansion of primary institutions.

Vernacular schools in places where there are dispensaries are already under medical inspection. The provision of suitable school buildings, the attention now paid to drill, games and physical exercises and the hygienic instruction to teachers during their course of training will, it is hoped, be generally beneficial to school hygiene, the importance of which is fully realised by the Government.

EMBEZZLEMENTS AND DEFALCATIONS IN THE LOCAL FUNDS ON THE INCREASE.

The Hon'ble Mr. M. R. Dixit asked :—

(a) Would the Government be pleased to state if it is a fact that embezzlements and defalcations in the Local Funds are on the increase, although they are subject to regular audit?

(b) Would Government be pleased to state the number of such audits by the superior Inspecting official or officials of (1) the mofussil Municipalities, (2) the Local Boards, (3) Zamindaries under the Court of Wards, in the Chhattisgarh Division, which are not on the Railway line during each of the last three years?

(c) Is it a fact that a special allowance is being paid to the superior Inspecting officials as compensation for expenses incurred on account of their movements having to be rapid ?

(d) Would the Government be pleased to consider, while arranging the programme of the Local Auditors, if it cannot be so improved as to entail on Government less travelling expenses and avoid long distance journeys ?

(e) Is it a fact that in one case the order in which places were audited was Rajim, Khamgaon, Gondia and Damoh ?

Government replied :—

(a) The figures for the last five years do not show any consistent tendency either to increase or decrease. The number of embezzlements in each of the last five years, beginning with 1911-12, is 17, 11, 8, 19 and 14. It may, however, be remarked that any increase in the number of embezzlements detected would point to the efficiency of the audit rather than to the inefficiency implied in the question.

(b) The only superior inspecting official in the Local Audit Department is the Inspector of Local Accounts. He does no audits, but inspects the work of the auditors.

(c) The facts are not as suggested by the Hon'ble Member. An allowance of Rs. 100 is drawn by the Inspector of Local Accounts and was sanctioned on the grounds, firstly, that work had largely increased owing to the addition of Berar and the Cantonments in Central India, and, secondly, that the work is almost equal to that of the Examiners in other provinces, who receive an allowance of Rs. 200.

(d) The utmost care is already taken to secure the objects suggested.

(e) It is presumed that this refers to the present year. These are only 4 places out of 15 included in one programme. The auditor had to go to Khamgaon from Raipur as the accounts at Gondia were not due for audit. Eventually, he did not go from Gondia direct to Damoh, but visited Bhandara,

Pawni, Sakoli, Tumsar and Bhatapara, the first four of which are in the neighbourhood of Gondia. From Damoh he will now proceed to Hatta and Saugor.

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The Local Self-Government Gazette.

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MAY

[1917

Administration of Local Boards (1915-16.)

[Central Provinces.]

THE review of the Central Provinces Administration on the working of District Councils and Rural Boards in that province does not give much credit to those bodies in respect of their business capacity or public spirit displayed in the discharge of their civic duties. In the first place, it is noticed that the attendance at meetings was not very satisfactory and that eight elected seats in Berar had to be filled up by nomination by Government owing to the failure of the electorates to choose proper representatives. The amendment of the Berar Rural Boards Law seems to be the only noticeable feature of the year and this law ensures that the Taluk Board members shall be drawn from all parts of the district and that the commercial classes shall be represented. It is hoped that this reform will stimulate interest in local self-government in the mofussil in that province.

Passing on to education, it is observed that the proportion of recurring expenditure under this head to the total income of District Councils in the Central Provinces rose from 29 to 31 per cent. and in Berar from 33 to 35 per cent., the provincial average being 32 as against 31 per cent. in the previous year. It is stated that there is a growing demand for the expansion of education in all but the backward jungle tracts and that this demand will favourably influence any proposals for the taxation of non-agriculturists and for the inclusion of tenants in the taxable classes. All District Boards in Berar have also recommended increases in the education cess on

land-revenue and the levy of an education cess on non-agricultural incomes, and it is stated that action is being taken to have this recommendation carried into effect.

Nearly the whole of the money spent on conservancy in Berar is divided between grants to the panchayats of villages under the Village Sanitation Act and the cost of sweepers in some of the other large villages. The Government have made a grant of Rs. 55,000 for the improvement of the village water-supply, but it does not appear that this amount has been promptly or satisfactorily spent.

Arboriculture has received some attention. But it is observed that there has been too much of a tendency to extend planting without regard being paid to the development and growth of trees already planted.

Finally, the Chief Commissioner observes that there has been progress in extending measures of decentralisation of power from the District Councils to the Local Boards which had been previously introduced in certain districts. There is, however, no evidence of any general increase of public interest or public spirit as already alluded to in the working of the Councils and Boards. Where non-official effort showed itself in real energy, it was confined to comparatively few individual cases and a suggestion made by the Commissioner of a Division in order to impress upon members of Local Bodies the responsibility which they owe to their constituents is well worth extracting. He says:—

“No application for a school, well, culvert or pound or
“other request of the nature should be entertained by the
“Deputy Commissioner and his staff, or by the Council or
“Board, unless it is put up through the member for the
“Circle, *e.g.*, the application should not be taken by the Deputy
“Commissioner, Sub-Divisional Officer, Tahsildar or Council
“and forwarded to the Local Board, but the applicants should
“be asked if they have represented the matter to their member,
“and if they have not, they should be told to do so. If
“this is done systematically, the member and the people will

“begin to realise his importance, and if the people see other
“circles obtaining their requests, whilst their own fail
“through the apathy and neglect of their member, they will,
“in course of time, look for and appoint some one who will
“represent them efficiently.”

The suggestion, if adopted, will not only educate the electorate, but will also make the local representatives realise their sense of responsibility and duty towards their constituents.

Another point referred to by the Chief Commissioner also deserves mention. He rightly points out that the District Fund Account Rules which very often unnecessarily throttled the Councils and left them with very little power of initiation or independence should be considerably modified so that with increased decentralisation and a greater sense of independence in financial and administrative matters Local Bodies might have a keener interest in their affairs than was possible in the past.

[United Provinces.]

As usual, the Review of the Local Government on the working of the District Boards in the United Provinces during 1915-16 presents an interesting survey of the salient features of the year's work. The progress made in adjusting the working of the various departments to the standards of expenditure laid down two years ago is prominently mentioned. One noticeable feature observed in tracing the cause of a general increase of expenditure under “general administration” is the employment of paid secretaries by several boards. But no information is available as to how far these secretaries have proved useful and whether the experiment has been a success.

The general financial stringency created by the War has resulted in a considerable retrenchment in expenditure on public works, but the Local Government observe that even if there had been no such incentive to economy, the Local Boards would not have been able to spend the sums at their disposal owing to the difficulty of getting good contractors and the general delay in the execution of public works.

Under education the main point of interest is the introduction of the project for the improvement of primary education—generally known as the Piggott scheme. It is observed that the greatest difficulty in giving full effect to this scheme is the provision of qualified teachers and training classes for them. The suitability of the character of the education given in the ordinary schools to the needs of the people is apparently questioned in all directions. The absence of special and technical education to make the pupils fit for their natural avocations, such as agriculture, commerce, etc., is considered to be a serious defect of the present system of education. Several boards have therefore started half-time schools to which agricultural farms have been attached. This system is reported to be unpopular with parents in some districts, but the Local Government are determined to continue this experiment as it is one of great importance calculated to afford a training to pupils directly useful in the practical walks of life, and not merely a literary training. There are also a few weaving schools doing good work.

Female education has, as elsewhere, made little progress owing mainly to the lack of trained teachers.

The medical branch of the administration appears to have received some attention. A number of new dispensaries have been opened and several districts are engaged in constructing new hospitals, while private benevolence is stated to be not lacking. The work of the travelling dispensaries is universally praised, especially during outbreaks of cholera.

The attempt to promote the sanitation of villages through the agency of village panchayats is a special feature of the administration in this Province. It is stated that the experiment has shown varying results. Grants of not more than Rs. 50 a year were given by the Government to selected villages on condition that the amount allotted should be doubled locally, and panchayats were encouraged "to keep their villages clean in their own way." In some of the villages no practical steps were taken to utilise the grants to the best

advantage ; while in others it is stated that these non-official committees have in them the seeds of success. In Lucknow most of the villages under the sanitary committees were practically immune from the severe outbreak of cholera which occurred in the autumn of 1915—a high tribute paid to the good work of these committees. After a perusal of all the evidence available, the Lieutenant-Governor concludes that although any great advance in sanitation may have to wait for the results of the education of the younger generation and the conditions of grants may require some modification, the scheme contains possibilities of success justifying further efforts. We hope that under the sympathetic guidance of the Local Government and their officers the village panchayats will become a recognized agency for promoting village sanitation and we venture to commend this experiment to the Madras Government for inauguration in this Presidency at least in some selected villages in certain districts.

The work of the tahsil (taluk) committees in the execution of petty works also deserves mention. The Lieutenant-Governor is inclined to believe that the time is near when such committees will relieve the head-quarter board of a mass of petty and routine work and will assist the district administration by introducing more thorough supervision and a closer grasp of local difficulties. It is, however, suggested that in order to ensure the successful working of these committees, definite powers—financial and administrative—should be conferred on them and that definite functions should be assigned to them. Unless these conditions are fulfilled, it is natural that the members cannot be expected to take any real interest in their work or to contribute anything to the solution of local problems.

In conclusion, the Lieutenant-Governor observes that there is a growing realization of the wide scope of the activities of district boards and of the contribution which they can make in the future to the general welfare and that the achievement of these aims will depend on the degree of public spirit attained by the members of district boards and on their willingness to co-operate in working towards a common end.

Town Planning in Southern India.*

[By H. V. LANCHESTER, F.R.I.B.A.]

DESPITE the innate conservatism of India the advantages of improved communications and transport facilities have been universally recognised, and the difference this must make to social organisation is easy to grasp. We know the history of railway development at home, and can readily imagine such a development at its early stages. That is now the condition in India, and it would be, to a large extent, possible to guide this movement with more wisdom than has been employed in the past. I dare not say that this is actually the usual course; too frequently there is the same obsession that all other demands must give way to those of the railway. Railway economies are divorced from all the others, and the result is necessarily fallacious.

My work last year having been mainly in Southern India, I propose to confine my review to this part of the Indian Empire, as in many ways there are marked differences between this and the more northern provinces.

Planning Schemes.

It is out of the question to attempt to follow in detail all the phases and problems with which I had to deal, and I shall limit myself to a brief review of the more important. It is necessary to explain that, while the Madras Town Planning Act is not yet in operation, the Indian is so accustomed to the authorities taking the initiative that in many cases town extensions are being undertaken by the municipality under Government control and advice, while at the same time a good deal of pressure can be brought to bear on private enterprises. On the other hand, by-laws are loosely drawn up and interpreted, and are very difficult to get enforced owing to the meagre recognition of their duties among the newly-formed corporations. Encroachments on public roads have been tolerated for so long that those needing more room

* From a paper read at a meeting of the Town Planning Institute held on 23rd March, 1917.

regard it as rather a hardship if they cannot filch a strip from the road, especially if their neighbours have already done so a few years back. The problems in traffic congestion under these conditions may be imagined.

In conjunction with this we find the tendency to overcrowding—and this in India is not based on economic grounds as in Europe, but on social ones. A given area is occupied by those of one religion, caste or trade, and owing to the contiguity of other castes or trades incompatible with the first, this area is unable to expand, and increased provision can only be made by packing houses closer on the ground.

Again, the division of property among members of a family tends in the same direction; an equivalent to the share of a house cannot always be given, even if some members of the family are prepared to go elsewhere (often they are not), and what was once a good and suitable house is divided and re-divided so that it ceases to be a convenient or healthy dwelling-place. The pial is enclosed, the court is built over, extensions are made at the back, and many rooms no longer get any light or air. Furthermore, housing of this type reacts on the national temperament. Being accustomed to overcrowding, people no longer feel that repugnance to this mode of life, and offer less resistance to such tendency to overcrowd as is inevitable when economic pressure in that direction is not combated. Physique deteriorates, and rather than undertake a little extra exertion workers will pack themselves into inadequate accommodation because near their work, or sometimes, indeed, because near a cheerful locality.

This is not an exaggerated picture of the state of things as existing in many an Indian city; and, if this be the case, what remedy can be prescribed? Restrictions as to the number permitted to occupy premises of a certain capacity are easily drawn up, but very difficult to enforce. The same may be said of by-laws restricting the amount of building on a given area, though with these the enforcement is somewhat less difficult.

I am inclined to put more faith in the policy of providing a counter-attraction in the way of pleasantly arranged building areas with every possible convenience of access and as near as possible to the congested districts—added to this it requires skilfully organised adjustments so that the various castes or trades shall not be violently uprooted, but rather offered some special inducement to remove, such as increased open space, or improved facilities in some form or other. Even then the problem is a difficult one, but there are signs of an increasing appreciation of the advantages of this type of solution, and the more frequently it succeeds the less will be the resistance that is met with in the future.

Housing.

New streets and open spaces are far more often required for the purpose of opening out overcrowded neighbourhoods than as provision for the needs of traffic, so that, desirable though a direct thoroughfare may often be, we have to be careful not to let the idea of this obsess us and lead us to adopt a scheme more extravagant than the actual needs of the case demand. It is always desirable to avoid the destruction of good-class property, and it is usually solely in the interests of traffic that such destruction may be contemplated; therefore the traffic need must be proved before this can be justified. If it be improved aëration and relief of overcrowding that is aimed at, we shall find that the “weeding out” of the worst type of dwelling will almost always answer the purpose.

It is extremely rare to find that wholesale demolition is a proper remedy, and it can only be advocated where this course will result in the substitution, for the same people who are dishoused, of a much higher class of dwelling. The measure has too often been adopted without any security for such a result.

In Europe it is a recognised duty that before removing a slum we shall see that the occupants have other convenient and superior houses to move to. Very few of the poorer people own houses, and the duty often devolves on the

municipality of building new houses for these people, who rent them from the municipality at rents that must be fixed within their means.

Now in India the occupants of even the very smallest houses often own these, but it is none the less a duty to ensure that it is made easy for them to find new homes in suitable location in place of those to be removed.

The tendency towards overcrowding, for the reasons previously given, is more difficult to combat than in Europe, and it is more urgent that the authorities should not only make it possible for those dispossessed to find other homes, but should organise the removals and provide every facility in their power. Sometimes the payment of a proper monetary compensation has been regarded as discharging this duty, with the result that those householders deeply in debt (and many are in this unfortunate position) have been compelled to use this money to discharge their debts and find themselves with no longer a home and no means to provide a new one. Overcrowding thus becomes inevitable.

It is clear that if there is any risk of this, municipalities must do more towards arranging for rehousing of those turned out than has hitherto been customary, though in all fairness I must admit that the attempt has frequently been made.

I may here explain what in my view is the best course for a municipality to take when expropriating householders under a clearance scheme. There are several alternatives. The immediate payment of cash compensation is, for reasons I have stated, often unwise. The provision of fresh sites and erection of new houses is rather a costly method if the new houses are, as they should be, much superior to those removed. In Europe it is possible to put up sanitary premises to be let at a suitable rent, but it is better that even the poor should own their houses when it is possible. Perhaps the best method is for the municipality to provide a new site, to allow so much of the old buildings as may be portable to be transferred and re-used, and then to pay out the amount allowed as compen-

sation in instalments as the new house is erected. If the householder desires (and in this he should be encouraged) to build a better house, the municipality can lend a further sum, taking a mortgage on the house, this sum to be repayable by the householder in monthly instalments proportioned to the sum so advanced. In all cases the house to be built should be approved by the municipality, both as being good in itself and suited to the position of the owner.

This last course is, I consider, the one usually most likely to ensure the success of re-housing schemes where those to be re-located are possessed of but small means. Where they are comparatively well-to-do the problem is a simpler one, but it might still be as well to take such steps as will ensure the compensation paid being devoted to re-housing in an adequate manner.

Tanks.

The smaller Indian towns of the present day still maintain to some extent the organisations of the past, and illustrate both their merits and failures. In most cases a reasonably good site has been chosen with sufficient fall to carry off storm water, and with a supply of good water from wells or a clean tank on the higher part of the site. In a climate normally dry it was only necessary to obey the dictates of cleanliness to ensure healthy living.

Where there existed a good irrigation tank this was often retained for the purpose of water supply, usually deepened and reveted to ensure cleanliness, while other tanks at lower level provided accommodation for washing and bathing. As the supply areas of these tanks were gradually occupied, if they were not to be abandoned it was found necessary to supply them from other tanks at a higher level, and thus a tank system developed and answered its purpose until neglect allowed the water to become foul and useless.

If the site were on the banks of a good river, of course the problem of water supply was simplified ; but here, as soon

as a town grows to any size, it becomes impossible to avoid pollution, and the river ceases to be an admissible source of supply.

There is every excuse for reference to this question of water, in that it has been a fundamental one in the organisation of the Indian city. The habits of the people demanded a copious supply of water, while it was rare that costly engineering works would be undertaken to bring water from afar. With better facilities in this respect more latitude in the city structure is admissible, but it must not be forgotten that a tank system is also a provision for surface drainage during heavy rains, and as the town area no longer needs irrigation the tanks and their connections are needed in order to conduct the water from the upper to the lower margin of the town, where it can be utilised for agricultural purposes.

Apart from their value for washing purposes and equalising the temperature, tanks act as a safety valve in cases of sudden storms, and relieve the pressure on the connecting channels.

Thus an Indian city, properly organised, will always retain its tanks, and their abolition, though occasionally justifiable, is more often the result of lack of consideration, and distinctly prejudicial. So far our argument has been based solely on practical considerations, but we should on no account omit the support they receive from those of beauty. Everywhere water, either as a stream, river, lake, or tank, is a source of delight, and particularly is this the case in a hot climate.

Water Carriage.

The advantages of water carriage have not been by any means adequately exploited in Indian towns. In many, where the situation lends itself admirably to the provision of a canal system, such a system is lacking, and even where canals have been made they are often neglected and not made the best use of as a means of transport. It may be contended that important existing canals in some cases fail to pay for their upkeep, but it must be remembered that a canal is of

little value without a systematic linking up with factory, storage, and port areas. Ports like Calcutta and Cochin, placed on low-lying ground, would be greatly the better for an extended canal system such as we may find in the Netherlands, and there are numerous other coast towns where development on the same lines would be economically sound.

Drainage.

A detailed discussion of drainage is beyond the scope of this paper, but there are certain features of this question, as it stands at present, that cannot be overlooked. India had in the past a definite sanitary system, perhaps ideally perfect for small communities, provided it was rigidly adhered to. Now neither of these conditions has been maintained. Even the large city of old days was more or less a series of groups with gardens and open spaces in between, quite unlike the closely packed towns of later centuries. Again, the discipline of strict observances has become relaxed, with the result that it is impossible to restore the old conditions in the larger cities of to-day.

There seem to be two alternatives. Where the city is definitely and irrevocably compacted together, there can be no other course than the adoption of European methods with such adaptations as can be made to meet national habits, and when everything practicable has been done in this direction to train the people to fall into line with the demands this system makes. At the same time we have to avoid building developments that necessitate the extension of sewerage systems, so that for so long as practicable there may be the alternative of the more traditional practices. The open layout of the garden suburb is of use in this respect, and if we can revive the old idea of the city as a group of villages it helps us. We cannot afford to introduce everywhere the costly systems demanded in Europe, neither will they benefit us unless the inhabitants are prepared to accept the change.

At the moment one cannot have any particular enthusiasm for this solution, as without far more definite general

appreciation of the demands of good sanitation it is very difficult to ensure its working smoothly.

The second alternative is more on the lines of existing practice; with this, systematic and organised drainage may be classified under three heads—surface water, sullage, and soil. Everywhere there must be some definite courses through which rain water can be carried off roads and footways; as the volume of storm water fluctuates greatly these water courses should be independent of all other drainage. For sullage or domestic waste water it is usually preferable to provide a channel system where the house compounds are too small to enable it to be used for cultivation and thus absorbed by plants. Cesspools in any form are to be avoided as objectionable. The removal of soil demands various expedients according to the habits of various classes of the community. Better class dwellings should be provided with receptacles, which can be exchanged, on collection and carried to suitable depositing grounds or places for septic treatment. Public latrines, if permanent, should be similarly furnished, but it may be doubted whether the more primitive form of latrine provided with screens only should not be a movable structure frequently shifted and the site dug over. The provision of liberal space with some degree of privacy is a good expedient from the sanitary point of view, and often far safer than elaborate sewerage schemes.

Municipal Engineers.

[By K. V. SUBBA RAO, MUNICIPAL COUNCILLOR, SALEM.]

INDIAN Cities can no longer be content with the old world notions of civic administration. Water and drainage works, town improvement and town planning are now recognised to be necessary for decent municipal life. These schemes are in various stages of development in several District Municipalities, and it is a matter of importance to entrust the work of municipal engineering to competent

hands. The Government desire to know what improvements may be effected with a view to make the place of a Municipal Engineer an attractive one. Men with adequate knowledge of municipal problems should be attracted to the work of Municipal Engineers; better emoluments should be paid to these officers. and their future prospects should also be adequately secured. Reform is needed in all these three directions, and I, therefore, desire to place before your readers a few ideas for their consideration.

How to secure Proper Men as Municipal Engineers.

2. In England, Municipal Engineering is a distinct branch of the Engineering profession. The Municipal and County Engineers have been running an institution which trains men for the construction and control of municipal public works. A perusal of the syllabus of the Institution reveals the fact that what is called Sanitary Engineering is not touched in Indian Colleges of Engineering. Besides building works and road making, the students of the Institution are taught to have a good practical knowledge of water and drainage works, of sanitary plants used for the disposal of dust and filth, of hygiene and of town planning. And what is more, the students are made to have a good working knowledge of these matters by practical training. That the Municipal public in England attach special importance to practical training will be seen from the fact that after getting the certificate of the Institution, the Engineering students get apprenticed to recognised Municipal Engineers even on payment of a *guru dakshana*. Here, in India, Municipalities will have to be content with engineers trained by the College of Engineering, and even with subordinate engineers "with experience." The Engineering College in Madras is intended to produce material for the Public Works Department of the Government of Madras, and its curriculum is suited to the needs of that Department and nothing more. An Engineer from the Madras Engineering College has a good knowledge of the theory of buildings, road making, road repairing and construction of bridges and

irrigation works. If he is to do duty as a Municipal Engineer, he should understand what modern town-planning means, how slums are to be improved, how extensions have to be laid out, how the water and drainage works have to be constructed and kept in order, how the water supplied to the inhabitants of the city is to be purified and distributed and how best street rubbish, sewage, and night-soil may be removed from the town and disposed of. All these he has to learn *after* he gets into municipal service, having had no adequate knowledge of them by his college studies. With the subordinate Engineer known as upper subordinate, the case is even worse. He is taken into municipal service on account of his "experience." Experience in what? Not in Municipal Engineering of which he was taught next to nothing in his school: nor even in the working of municipal sanitary schemes of which, by the nature of his work, he could not keep in touch. He is made to drudge in a subordinate capacity as a minor irrigation overseer, as a local fund overseer, or as an overseer in the P. W. D., executing orders from above, and never getting an opportunity to initiate even the most trivial work in his profession. What will such experience avail him in his new sphere of work as Municipal Engineer?

3. My proposal is to employ men trained specially for Municipal Engineering. If facilities are not in existence to secure that end, the obvious course is to begin at once so that municipal schemes may not be mismanaged by incompetent hands. The Engineering profession of this Presidency is official-ridden, and it cannot be entrusted with the duty of forming an institution similar to the Institution of Municipal and County Engineers in London. Why not start a new class in the Madras Engineering College for training Municipal Engineers? A new Degree should be instituted by the Madras University to give a hall mark of training in the specialised department. That is the only solution that I can think of, and if pressure of public opinion demands it, the

Government is certain to adopt the course. If the scheme is started in Madras early, (I feel certain that the other Presidencies will adopt similar schemes sooner or later) we shall have the special advantage of opening a new career for our young men not only in this Presidency, but also in other Presidencies where there is a demand for competent Municipal Engineers. I noticed that the Benares Municipality advertised for a Municipal Engineer recently on a salary of Rs. 500-700 per mensem.

Salary of the Municipal Engineer.

Municipalities have been divided into grades according to their size and income, and the Government insists that the larger Municipalities should have a scale of Rs. 150-200 for their Engineer. The qualifications wanted are a Degree in Civil Engineering or a certificate of an upper subordinate with some experience. Besides Government service, where a B.E. has a chance to rise up to the grade of Superintending Engineer, the District Boards offer better pay and prospects to their engineering staff. Local Fund Assistant Engineers get a salary of Rs. 250 after some years with the added prospect of getting a District Board Engineer's post. With no further prospects before them in the Municipalities, B. E.'s who are by no means numerous cannot be expected to accept the scale of Rs. 150-200. Upper subordinates "with experience" are not competent to be Municipal Engineers and the Government, I take it, included that class merely because B. E.'s might not be available. The so-called experience of upper subordinates is often a disadvantage to Municipalities. Young men pick up new ideas sooner. They get to work with a freshness of mind so helpful to initiative and their vigour and enthusiasm are qualities wanted abundantly in a Municipal Engineer whose work is of an onerous and varied character. Upper subordinates accustomed to 'do duties of a routine nature cannot be expected to put in enough of enthusiasm for a new kind of work in their later life when alone they can get appointed as Municipal Engineers. I plead for shutting out this class entirely from

Municipal service in the larger Municipalities where an Engineer is wanted, and I should raise the scale of pay of Municipal Engineers so that Municipal Engineering may be at least as attractive as an Assistant Engineer's place under the District Boards. A scale of Rs. 150-300 will not be too much. It is the scale of pay that is offered to second class Municipal Health Officers. The work of Municipal Engineers is by no means less onerous than that of Health Officers. It is true that Municipal Councils demur to pay more. But why should not the Imperial and Provincial Governments that pay $\frac{3}{4}$ of the Health Officer's salary undertake to meet a portion of the Municipal Engineer's salary? A Municipal Engineer is as necessary for advanced Municipal life as a Health Officer and I wonder why the Government should give a subvention for the one and not for the other.

Prospects.

Taking the analogy of the treatment given to Health Officers, I plead that Municipal Engineers should have sufficient prospects before them in the service. An amalgamated list of Municipal Engineers and Local Fund Assistant Engineers may well be kept as a provincial list. That will be some way of rectifying the abuses of patronage even in the Local Fund service. For the District Board Engineer's place, an Assistant Engineer who gets the strongest support from the Civilian President of a District Board has got to be selected. It may be that there are more capable men in the Local Fund service who are senior in service to the man selected as a District Board Engineer by the Government under the present arrangement. A provincial list of Municipal Engineers and Local Fund Assistant Engineers will give complete information about all the qualified men with their length of service; and, if necessary, men showing special aptitude for original work may be promoted over their seniors; but some definite rule should be observed and everybody in the list should be given a chance of his claims being considered by the Government when the opportunity for promotion comes

without having to apply for appointments with credentials. Municipal and Local Fund Engineers should also be eligible for the posts of the Assistant Sanitary Engineers. A system of pooling the entire Sanitary Engineering staff of Local Bodies and the Government is bound to attract first rate men for the profession.

Educational Organisation of Local Boards and Municipalities.*

[BY THE HON'BLE RAO BAHADUR M. RAMACHANDRA RAO.]

UNDER the present Orders of the Government, the activities of the local bodies are now mainly confined to elementary education. Local Boards and Municipalities maintain a certain number of schools but this is comparatively little. A large portion of expenditure on elementary education is now incurred direct from Provincial revenues as grants-in-aid to private institutions ; the payment of this amount is made direct by the Department of Education and the control over the aided institutions is exercised directly by the officers of the Educational Department without any reference to the local bodies within whose area the schools are situated. The question arises for consideration whether in the matter of education, the position of local authorities in this Presidency is satisfactory. I am of opinion that it is not and the present position can only be improved by some radical alteration in the system of educational administration.

2. In the first place, the present constitution of local bodies is unsatisfactory, judged from the point of view of the expansion of education. We shall have to consider how far the existing machinery for the diffusion of education through local bodies is in need of revision. Its inherent defect, in my opinion, is that the present system does not make provision for the active co-operation of the people or of those interested in the cause of education. There are many voluntary agencies in aid of education in each area under the control of the

* A paper read at the Madras Local and Municipal Conference (1917).

local authorities engaged in the field of education and under the present constitution of Local Boards and Municipalities there is no means by which local authorities can now secure their co-operation or co-ordinate the efforts of both the agencies. A way must be found by which the co-operation of these voluntary organizations can be secured and co-ordinated. There are also in many Taluk Boards and Municipalities a large number of persons who are interested in educational topics and whose co-operation would be valuable but who are not actually sitting on these boards. It is desirable that their services should be secured to stimulate local interest in education. The landed classes in each area exhibit a better interest in the cause of education than before and their association on a statutory footing with the educational movements of the district would be desirable. There are many wealthy and influential persons who without actually being members of any Local Board or Municipality may still be willing to give their co-operation in the cause of education. I think, therefore, that power should be conferred on local authorities for the co-option of persons who are not on the councils and boards, on committees of local authorities. I would go even further. The function of education is so important that it must be specialised and a special machinery should be devised to enlist popular sympathy and co-operation in the cause of education. The duties of the local authorities under the existing Acts are so varied in their character that I consider that while there is in the local bodies a great deal of enthusiasm for education and educational effort, there is neither time nor adequate opportunity to bestow much thought and give sufficient attention to the important subject of organising the educational activities of the area. On these grounds, I would advocate the formation of separate Educational Boards for areas under the control of each local body. But I would not, however, disassociate these boards with existing local authorities. The new boards must be co-opted bodies containing a sufficient number of members of the local body and also a substantial number of men interested in

matters pertaining to education, from outside. Everybody need not necessarily be an educationist by profession. In this way it must be possible to secure a body which is always looking into the subject of educational advancement of the area.

3. In this connection attention may be invited to the provisions of the Bombay City Municipal Act for the appointment of a Joint Schools Committee for purposes of Primary Education.

The Bombay Corporation and Government are enjoined to appoint a Joint Committee for the purposes of giving effect to the provisions of the City Municipal Act in regard to education. The Joint Schools Committee has a separate Secretary and establishment and administers a fund placed at its disposal and looks after the maintenance of Primary Schools. Similar Committees may be appointed under that Act in furtherance of secondary education or any branch of technical or other instruction. It seems to me that some such specialisation of effort in the cause of education is absolutely necessary to stimulate all voluntary local efforts as also to enable local bodies to give better attention to the organisation of educational activities. In the Madras City Municipal Bill recently published, provisions such as those mentioned above are not to be found. In Bombay, the Committee appointed on the question of the extension of local self-government have also recommended a similar change for local areas outside Bombay. They have suggested the constitution of a school board for the general control of all matters connected with elementary education in the Local Board areas. The School Board is to consist ordinarily of three or four members of the District Council (which corresponds to our Local Board) and four members with educational or administrative qualifications from outside the Council. It is to be a co-opted body to work in conjunction with the District Council.

4. In the United Kingdom under the Education Act of 1902, the local education authority is the council of every

county borough for both higher and elementary education, and the council must establish an educational committee or committees. This is not necessary in the case of minor authorities, that is, with boroughs to the population of one thousand or less. A County Council must appoint a majority of its own members on the School Board unless it decides otherwise and persons of experience in education and acquainted with the needs of the schools in the areas concerned are to be co-opted by nomination or recommendation of other bodies. Separate committees may be established for any area within a county and a joint committee likewise for a combination of areas. In this way, there are local educational committees in all administrative counties, county boroughs and boroughs urban districts and in several of the minor local authorities in England, where co-opted members interested in educational work including woman workers are continually working in the cause of education. I would therefore suggest that in the impending legislation in regard to Local Boards and District Municipalities similar provisions should be enacted and that wherever conditions are suitable special educational boards may be given a trial. This change is advocated with a view to make educational organisation more efficient and to bring into play all factors interested in educational work and should not be understood as in any way advocating the removal of popular control of education.

5. This brings me to the subject of educational expenditure. If separate boards are necessary, they must have enough of resources at their disposal. The present expenditure on elementary education is now shared between the local bodies and the Government. There is no fixed proportion as to the share of each, but I feel no hesitation in saying that the expenditure by local bodies has been practically stationary and the Government have been doing their best to allot more funds for education, though the insistent demands of the other great spending departments of the Government naturally make a greater impression on the Government. It must be

stated however that if educational expenditure of local bodies has not shown any expansion, it is not due to any indifference on the part of these bodies to educational progress. Their resources are very inelastic and local bodies have also so many claims pressed upon them that they find it impossible to do more at present. It seems to me that if elementary education is to be more thorough-going and the ideal of free and compulsory education is to be reached in a reasonable period of time, separate financial resources must be secured for these new boards. Some of the local bodies in this Presidency have declared themselves in favour of an education cess. But this by itself is not enough, and if this is to be imposed for purposes of education I think that it will only find general acceptance on the distinct understanding that the Government will contribute its own quota. From the report of the proceedings of the Directors Conference, it would appear that the Government of India are inclined to stimulate local taxation for educational purposes by promising to contribute twice the amount so raised. Elementary education is one of those functions of local bodies which has been classed as a national service in Western countries. The main source of meeting the cost of such a service is the general revenues of the country and local bodies can consent to local taxation for educational purposes only on this footing.

6. It may, however, be pointed out that the Government has not set up any definite ideal as yet in the matter of elementary education. What is the policy of the central authority in the matter of Board Schools *versus* Teacher Managed Schools? There have been various conflicting opinions on this subject and educational officers are not themselves quite clear as to what might be done in this respect to secure expansion combined with efficiency. This is, however, mainly a question of funds. On the one hand, the Board School in a village has nobody to look after on the spot and the teacher is without any local control. There are no school committees or panchayats in the villages and the departmental

officers resent all local control. It is not now possible for the inspecting officers to inspect schools as often as is desirable. At the most the Sub-Assistant Inspector visits the school twice a year and the Supervisor once in two months. Under these circumstances it is no wonder that Board Schools are not considered in many localities above the average of teacher managed schools. If the policy of the Government is to expand elementary education through Board Schools, it is necessary that these defects should be remedied as early as possible. The village has no interest in the school at present and the school is not now regarded as an indispensable part of village life. Local bodies have not moved in the direction of constituting village committees and to hand over the village school to them for being looked after. In some Provinces, committees have been formed for Board Schools and attempts have been made to form them even for aided schools. The object aimed at in constituting them is not only to rouse local interest in education by focusing it with a permanent body but also to secure an organ of official opinion and advice with which local authorities can deal. It is not surely to be expected that these committees would be an instantaneous success. In fact, the experience in other Provinces has shown that they cannot be so. The recent Orders of Government about the constitution of informal panchayats contemplate that village schools should be under the control of village panchayats ; even if no other function is assigned to them, the formation of village panchayats in each village to stimulate local interest in education will do a world of good.

7. I must now say a few words on the subject of dual control of educational institutions in this Presidency. Till a few years ago, Local Boards and Municipalities employed their own Supervisors for the inspection of Elementary Schools. This arrangement was not satisfactory as the service did not attract good men with necessary educational qualifications. Local Boards were financially independent of each other and there was no combined service of all these bodies

which held out any prospect to the men employed. The provincialization of the post of Supervisors was therefore a step in the right direction. But I am strongly of opinion that there was no need to take the Supervisors out of the direct control of the local authorities. The result has been that local bodies have no inspecting agency of their own and have to rely upon the services of officers over whom they have no control for an efficient inspection of their schools. It is true that the central authority must have its own inspecting agency to see that the grants given by the Government are being properly spent. But that does not mean that the local authorities should be deprived of every grade of inspecting officers including the lowest. The present state of things is causing a good deal of friction and has not promoted efficiency. I am of opinion that at least Supervisors must be placed directly under the control of local bodies so that they may have more knowledge of the state and conditions of their schools. Under the present state of things, the Supervisor and Sub-Assistant Inspector practically run the schools without being responsible to the local authorities in any way and each party blames the other for all shortcomings. The present system of dual control also came up for consideration last year before the Bombay Committee on Local Self-Government. In Bombay the conditions seem to be similar to those in Madras and after an examination of the whole question the Committee recommended the transfer of the subordinate inspecting agency to District Councils. It was recommended that the existing staff of Assistant Educational Inspectors (corresponding to the Sub-Assistant Inspectors in this Presidency) should be transferred to the service of District Councils and should, if they were unwilling to exchange their present status for those of the servants of the District Councils, be regarded as Government servants on foreign service. The Committee also recommended that the control of the staff should, in professional and technical matters, be subordinate to Educational Inspectors and Deputy Educational Inspectors but that they should be responsible to the school boards for their

conduct and work. A similar system already prevails in this Presidency in regard to medical subordinates. A change in the existing state of things is urgently called for.

8. Another direction in which reform is urgently needed is Secondary Education. I think the time has come when the whole question of the policy of the Government in regard to Local Boards in the field of Secondary Education should be reconsidered. At present Local Boards have no definite duties in the matter of Secondary Education and do not examine the needs of their areas from the point of view of Secondary Education with the result that boys residing in a Local Board area have not infrequently to go long distances outside the area to obtain instruction in a Secondary School. In their recent circular, dated 19th September 1916, on Education, the Government of India have stated that they accept the principle that the educational activities of Local Boards should at present in the main be confined to Primary Schools. The Government of India also have laid down that the financial support of Secondary Schools which are now maintained at the cost of local bodies must be continued by them on existing lines at present and that when financial conditions permit, all such expense should be made a charge upon Provincial revenues. The policy of securing expansion of Secondary Education solely by private effort has not, judging from the experience of the last fifteen years, met with much success, and I believe Local Boards can be usefully employed in securing a better rate of progress in this respect.

9. My proposals may be summarised as follows :—

(1) Steps should be taken for the constitution of Education Committees or Boards to be co-opted with the Local Boards and Municipal Councils. These Boards need not be established in the case of smaller local bodies and they may be tried first in the areas where they are likely to prove successful, and then gradually extended.

(2) The Education Committees must have separate resources set apart for educational expenditure. If an education

cess is to be imposed it can only be on the guarantee that the Government will contribute the larger part of expenditure on elementary education. Elementary education must be considered a national service and not a local service.

(3) The local bodies must have the lower inspecting agency directly under their control. The higher agency may be under the Government. The provincialization of Supervisors while it has improved the position of a class of officers has resulted in depriving local bodies of their own inspecting officers and of all means of efficient control. The service may continue to remain a provincial service but the officers should work directly under the local bodies subject to disciplinary control.

(4) Local control of village schools should be developed by the formation of village committees or panchayats.

(5) The needs of each district from the point of view of secondary education should be examined and Local Boards and Municipalities should be used as agencies for starting new schools. The district should be regarded as a unit for secondary and elementary education and the needs of secondary and elementary education should be systematically examined and periodically co-ordinated.

(6) Attempts should be made to utilize Local Boards in the sphere of agricultural instruction and agricultural experiments. Most of the members of the rural boards are engaged in agricultural pursuits and have a great deal of interest in agricultural and veterinary matters.

Freedom of Local Bodies.*

[BY THE HON'BLE RAO BAHADUR V. K. RAMANUJA CHARIAR,
CHAIRMAN, MUNICIPAL COUNCIL, KUMBakonam.]

NOW that the question of self-government is being discussed, it may be useful to consider what progress has been made in the development of our capacity for local self-government. That there was self-government in

* A paper read at the Madras Local and Municipal Conference (1917).

villages has been amply proved. But whether there was any similar agency in towns for looking after their affairs is not clear. At any rate, when municipal councils were first constituted, it may be taken that a new experiment was being tried. But the trial was made under very great difficulties. The members of each municipal council were at first nominated by Government, and the people in general looked upon them as *quasi* Government servants. The only difference between them and other Government servants was that they drew no pay, and that instead of working individually they worked together. The municipal councils on their part do not appear to have regarded themselves as the servants of the townsmen whose business they administered. The view that municipal councillors are Government servants has been confirmed by the following circumstances: In the first place, the councils have been given only limited powers of expenditure, references being necessary when these powers have to be exceeded. For instance, if a temporary clerk has to be appointed, the sanction of Government has to be obtained. This power of sanction has now been delegated to the Collector: but this, so far as the councils are concerned, makes no change. If a small amount should be expended in giving prizes to the students of a municipal school, a special application should be made. Other instances will easily come to the mind of the reader. In the second place, Government and their officers, the Collector and the Revenue Divisional Officer, frequently interfere with the work of the municipal council. If that body resolve to acquire a piece of land for widening a street, and they come to this resolution after careful consideration, the land-holder affected naturally enough complains and submits petitions to the Revenue Divisional Officer, the Collector and the Government. A report is called for from the Chairman, and not infrequently suggestions are made, which from the nature of the case have to be accepted. There is on one side the decision of a body of twenty-four persons, many of them natives of the town, and considerably

advanced in years ; on the other side there is the opinion of a single officer, unconnected with the place, and often junior in years and experience. If his opinion should prevail, as it does in many cases, it only proves the strength of the hold which the bureaucracy has on the country. If Government should constantly interfere in this manner, why should not the people honestly believe that the whole is a Government machine, and that they have nothing to do but to complain when the shoe pinches. All these difficulties—nominations by Government, limitations on the council's powers of expenditure, and interference by local Government officers—are in the name of efficiency. But it is forgotten that while municipal councils are so carefully tended, they must present a sickly appearance, that healthy vigorous growth is possible only in the absence of hot houses, and that the councils must be left to struggle for themselves in storm and sunshine.

In spite of these limitations the councils have done, and are doing, useful work. I have now been nearly five years in charge of one of the largest municipalities in the Presidency, and I can speak with appreciation of the spirit which animates my fellow councillors. If Government will take a wider view, and make the councils thoroughly independent with full power to sanction expenditure, their usefulness will be very considerably extended. Mistakes may be made. But who is free from them ? Many years ago, Government proposed to complete the revenue survey of the Presidency and obviate the need for re-survey ; but we are as far from the end as we were before. New experiments were made in the mode of survey under suggestions made by individual officers and they are now condemned. What is called the plane table survey is an instance in point. What is the harm if municipal councils make similar mistakes ? They will gain experience, and every mistake made will be a step in the ladder of progress. While on this subject I would enter my emphatic protest against what appears to me to be a retrograde policy—that of appointing a paid commissioner in the larger municipi-

palities. This feature the Government propose to borrow from the Bombay Act as administered in the city of Bombay ; but it will, I am afraid, be a covert way of taking away from municipal councils what powers they now possess.

While I seek to make municipal councils really independent, I should not fail to suggest measures for preventing them and their chairmen becoming bureaucratic. There is a tendency in every person entrusted with power to become a bureaucrat, unless a proper check is provided. Every effort should therefore be made to make the people of every town understand that they are the masters of the municipal council, and that the councillors are their servants. One or more People's Associations should be formed to watch the work of the municipal council, to criticize their acts, if injurious, and to prevent the re-election of such councillors as have not been mindful of the people's interests in the past. In order that the councillors may be amenable to the people, all the seats should be thrown open to election, except that of the Revenue Divisional Officer.

The development of self-government will be quickened, if the Chairmen of municipal councils will carefully study the position occupied by the Speaker in the British House of Commons. They should keep themselves above party strife, and while placing before the councils the *pros* and *cons* of every question, they should not import into it any personal bias. On most questions, it is desirable that they should be neutral, and their casting vote should be very sparingly used. Their endeavour should be, as far as it lies in their power, to make every councillor do some municipal work. This is best done by dividing the council into a number of sub-committees for looking after the different portions of work, such as the Public Works, Education, Tax appeals, Sanitation, Civil Suits, &c.

In regard to Local Self-government outside municipal areas, I cannot say that the same progress has been made. Taluk Boards, which should be regarded as the real self-

governing agencies, have very little power. They cannot control the Public Works staff, and cannot issue direct orders to the Overseer paid by them. They have no control over their dispensaries; and if anything has to be done, they should move the District Medical Officer. They have no funds other than those given to them by the District Boards. Another reason for the slow development of self-government in the rural tracts is the extent to which seats on the Taluk Boards are filled by nomination. Acting on the principle, "As above, so below," large land-holders with no capacity for useful work are nominated to the Taluk Boards. In the Legislative Council, it may be permissible for H. E. the Governor to nominate Maharajas and Nawabs: for they lend a dignity to the Council. But in the Taluk Board real work has to be done, and we require men who can speak with knowledge and can move about in the portions of the taluk which they represent. The sooner the system of nomination is abolished, the better. This system lends itself to the nomination of persons who will not put inconvenient questions, but will aid the administration by their silent votes. A President with bureaucratic tendencies—be he an official or a non-official—will not be slow to use this loophole for his own convenience. All the members of a Taluk Board, except the Tahsildar and Divisional Officer, should therefore be elected. It is also necessary that the Taluk Boards should receive all the taxes raised within their jurisdiction, and should be responsible for their expenditure, exercising full control over their servants. It is unnecessary to add that, following the policy laid down by Lord Ripon, every taluk should have its own Board.

When this last improvement has been effected, the District Board as at present constituted should be abolished, and its place should be taken by another Board consisting of the Collector, the Divisional Officers and a representative from each municipal council and Taluk Board. It should have no power of administration and should have nothing to do with the collection or expenditure of funds. It should only give

advice to these bodies, obtaining the funds required for its expenditure from local boards. Its function should be merely consultative ; it will scrutinise the budgets and administration reports of local bodies and lay down the policy to be followed.

In my opinion, these are the directions in which we should strive in the immediate future.

Official Reports and Non-official Municipal Administration.

AT the March meeting of the Assam Legislative Council, the Hon'ble Rai Phanidhar Chaliha Bahadur asked a question regarding certain remarks passed by the Sanitary Commissioner in his report for the year 1915, which reflected on the character and public spirit of certain municipal chairmen and commissioners. The facts of the case are simple and it is desirable that full publicity should be given to them in order that Officials of Government may curb their tendency to criticise and find fault, wherever non-officials are concerned. In the Provincial Sanitary report for 1915, the Sanitary Commissioner for Assam wrote as follows regarding the Jorhat pattern of latrine, which Municipal Councils did not, in his view, readily take up for adoption :—

“ Some towns put us off with assurances that ‘some’ latrines have been reconstructed, others issue notices for reconstructions upon which no action is taken or enforced, others refer the question to a sub-committee which deliberates inconclusively at infrequent intervals, and others again refer the Jorhat plans and estimates must be very largely exceeded. *The difficulty which appears to be common to all seems to be in the unwillingness of unofficial chairmen and commissioners to incur an unpopularity with the electorate which may blight their hopes of civic advancement.*”

Four councils promptly took objection to this paragraph, especially to the italicised portion which suggested improper motives. The Silchar Council expressed its surprise at such

objectionable remarks and reported the matter to the Government, and the Councils of Gauhati, Sylhet and Dibrugarh followed suit. The injustice of the criticism can be gauged by the fact that while all the councils were, in the opinion of the Sanitary Commissioner, in the wrong in not having constructed the Jorhat pattern latrines, that officer specially selected, for his pointed condemnation, the four Municipalities of Gauhati, Dibrugarh, Sylhet and Silchar, which alone, in Assam, had non-official Chairmen. The discrimination shown can only have arisen from the tendency to be only too ready to condemn unofficial work, without waiting to see whether official work was in any way better. Moreover, it appears that the particular pattern selected was found to be ill-adapted.

The Government, after obtaining an explanation from the official concerned, passed proceedings from which the following extract is taken :—

“The Chief Commissioner considers that the wording of the passage in the report was unfortunate and calculated to convey an impression which is not justified. I am to add that, in the Chief Commissioner's opinion, elected members of a local body are perfectly right in considering, and in fact are bound to consider, the views of their constituencies. When they differ from their constituencies in respect of any particular matter, it is a delicate question for consideration whether they should resign or whether, on the other hand, they should retain office and endeavour to educate their constituencies up to their opinions. The Chief Commissioner has no reason to think that elected Municipal Commissioners are not carrying out their duties conscientiously on the lines above indicated. It is true, however, that certain aspects of sanitary reform are not popular anywhere in the world, and the Government may always be looked to for help where Municipal Commissioners require it.”

We say *amen* to these very proper remarks and hope that officials who have to do with local self-government will learn a much needed lesson from this incident.

Housing Conditions as Factors in the Production of Disease.

[BY DR. JAMES FORD, DEPARTMENT OF SOCIAL ETHICS, HARVARD UNIVERSITY.]

IT is generally conceded that housing conditions may affect the health of occupants. It seems obvious to most persons that improvement of housing conditions by legislation and other devices will reduce ill-health. Nevertheless, I cannot find anywhere in housing literature a sufficient use of the discoveries of the sciences of bacteriology and pathology, nor a list, which is at all adequate, of the illnesses which may be occasioned by the condition of man's habitation. The aim of this paper is to show the many ways in which the house deleteriously affects the health of its occupants.

The diseases associated with housing conditions may be classified according to origin as (1) traumatic (*e.g.*, maiming, bruising, burning, crushing); (2) parasitic (conveyed by animal parasites, *e.g.*, malaria, hook-worm); (3) bacterial (conveyed by microscopic colorless plants); (4) chemical (inorganic poisonings); (5) nervous or mental. Of these the diseases of bacterial origin which are associated with housing seem to be numerically the most important, including as they do a large number of prevalent respiratory and intestinal diseases. The traumatic group is of notable importance, the parasitic and chemical of slight relative importance. The mental group is unmeasured and for the present unmeasurable, but perhaps the most significant of all.

The traumatic diseases, or injuries, caused by housing conditions, would include almost all forms of superficial wounds. Cases may be cited where men have been crushed by the falling of defectively built structures, or cut by broken window panes, or torn by projecting nails, or burned by tenement fires, or suffocated by the smoke of such fires. Such injuries are increasingly prevented through building laws, housing laws, and fire-prevention laws. Nevertheless, the number of cases of

death and sickness so caused must still be considerable. Accidents, furthermore, such as falling on stairs, may be prevented by such simple devices as the prohibition of winders, the specification of height of risers and width of treads, and by the requirement that windows shall be provided to light halls, and that halls shall be artificially lighted at night. Accidents from defective balustrades or railings, rotten flooring, defective fire escapes, can be controlled by equally simple legal devices.

The diseases caused by chemical poisonings through the mediumship of the house are relatively unimportant, but they should include carbon monoxide poisoning, traceable to defective flues and illuminating gas poisoning from defective fixtures. These diseases may be prevented through specific legislation, and careful inspection.

The parasitic diseases are seldom closely associated with housing conditions. Nevertheless, in the case of two of the more prevalent diseases within this group, improvement of housing conditions will cause a notable reduction of morbidity. Malaria, which is transmitted from man to man, through the medium of the mosquito, may be reduced if rooms are well screened, though obviously prevention at the source is preferable. The hookworm disease is conveyed in regions where sanitary conveniences are primitive or non-existent, by an intestinal parasite, and may be prevented in large part by the universal requirement of sanitary privies, or of modern toilets.

There are a score or more of bacterial diseases associated more or less closely with housing conditions. The house furnishes in some way the medium of transmission. Improvement of housing conditions in specific ways would tend to reduce each of the diseases in question. The first and most conspicuous group of bacterial diseases consists of diseases of the respiratory tract; tuberculosis, colds, influenza, bronchitis, and various other throat infections, may be included. Each one may be transmitted from individual to individual in all

probability, by the inhalation of dirty air containing quantities of the specific bacteria in question. Since it is possible by housing legislation to control somewhat the factor of ventilation, it is possible at least to hasten the desiccation of these bacteria, thus destroying their virulence. The maintenance provisions of housing laws can, in extreme instances, cause the reduction in quantity of dust and dirt, in which such bacteria might live for brief periods outside of the human body. It is not altogether clear that these diseases may be dust-borne. It is clear, nevertheless, that a few bacteria may ride upon dust particles and may be inhaled, though perhaps not in sufficient quantity to cause serious infection. It is clear also that in the crowded tenement, droplets containing large numbers of virulent bacteria may remain for a while suspended in the air within a radius of several feet of the infected person, such bacteria being ejected by coughing, sneezing, or even loud talking. Control exercised over room crowding should therefore tend to reduce somewhat diseases of this nature, especially when supplemented by ventilation and maintenance provisions. Housing ordinances which provide for the natural lighting of halls and apartments, *e.g.*, the paragraphs on sizes of yards, courts, windows, should have value also in the prevention or spread of the bacterial diseases, because exposure of the disease germs to the sun's rays causes them to lose their virulence within a very few hours, and strong diffused light, especially when supplemented by moving air, will destroy such germs within a few hours or days.

There are several diseases transmitted by intestinal bacteria, which are transmitted from man to man through contaminated food or drink. Several such diseases, typhoid fever, dysentery, cholera, in rural communities on the outskirts of our cities, beyond the municipal water and sewage systems, are transmitted from man to man by the privy and the contaminated well. These cannot be listed among the widely prevalent house diseases in cities enjoying universal municipal sanitation. Nevertheless, it is possible that such diseases are carried to some extent by flies from the privy or

from any defective fixture, to the food of the adult, or in the case of infantile diarrhoea, to the nipple of the milk bottle. The requirement in health and housing laws of the covering of garbage pails and manure piles, which are the breeding places of flies, and the removal of all organic wastes from all premises, would materially reduce the number of such carriers, and the adequate screening of homes would increase the protection.

Innocent infection from the venereal diseases is possible, according to many authorities, through the mediumship of the common toilet. The bacteria of these diseases may retain their virulence for from one to three hours, roughly, outside of the human body, provided they are in a moist place, and may convey the infection through an abrasion of the skin, even an abrasion so slight as to be invisible. The tendency of modern housing legislation to require a toilet for each family, is largely to be justified on these grounds. There are other ways in which housing may serve as medium of infection by these diseases, for Dr. Antonio Stella of New York has cited instances of their transmission in crowded Italian homes, to young children, through contaminated bedding, towels, and the like. Various skin diseases, also trachoma and other eye diseases, may also be transmitted through the common towel. In the case of lodging houses, dormitories and hotels it is possible, through legislation, to eliminate the common towel, and thus assist in reducing the transmission of this last group of infections.

The part played by vermin in the transmission of infections is little known as yet. Nevertheless, the bubonic plague is apparently transmitted by the rat flea, which would suggest that one essential means of prevention would be the rat-proofing of houses, possible through inexpensive structural devices which might be required in the building law. Experiments have shown also that disease germs of various sorts may be passed through the bodies of house insects, such as the cockroach or waterbug, without loss of virulence. Doctor

Lord's experiments with the house fly have shown that the tubercle bacillus is also virulent after passing through the fly fed upon positive sputum from tubercular patients. The chances of infection of food from these sources seems worthy at least of consideration.

I have been able to find no specific study of the bearing of housing conditions upon the production of nervous disease. It seems probable, however, that the conditions of the home would materially effect the nervous tone of the occupant. This is very clear in extreme cases. The fright occasioned by a tenement house fire or conflagration, may result in considerable nervous instability in susceptible cases, and this instability may be lifelong and may handicap the ill person quite seriously in his or her life activity. It is to be expected also that premature and frequent sexual excitement and morbid sexual states may be induced, especially in children, by the crowded living of both sexes and all ages, and by the intimate association of families and lodgers. Furthermore it is virtually impossible for careful parents living in crowded quarters to protect their children from association with persons morbidly sexual or perverted. These are problems which are much more than housing problems, yet it is possible through public control of overcrowding and of the lodger evil, through specific prevention of prostitution in tenement houses, through requirements of separate toilets for each family, accessible through a private hall, to reduce these evils somewhat. Fatigue of nerve centres from incessant noises of crowded tenements, from sleeplessness caused by such noise, from eye-strain inevitable to dwelling in gloomy rooms, from excessive stair climbing and the like may be classed with the nervous diseases and also in the latter cases, with the traumatic diseases which are chargeable in part to housing conditions. All provisions tending to encourage the construction of cottage homes would tend to reduce these evils as well as the dangers from bacterial disease before mentioned.

Housing legislation is most effective in the prevention of disease in all probability, not because it provides means of reducing contact or destroying germs, but because of the part which it may play in the building up of resistance. Human beings vary apparently quite considerably in their relative constitutional immunity to specific diseases, but a given individual susceptibility to many diseases, as for example, tuberculosis, may be considerably affected by his mode of living. Resistance may be reduced by overwork, under-nourishment, abuse of alcohol or certain other poisons, apparently also by inadequate exercise. Resistance may apparently be increased by living in fresh air. It is probable also that sunshine plays a quite important part in increasing human resistance. The quality of the blood and that of the number of phagocytes or white blood corpuscles which are among the most important of the body's defensive agents against disease, may be increased rapidly by exposure of the body to the sunshine. In so far as housing legislation tends therefore to increase the amount of fresh air and of sunshine in the homes of all classes, it presumably tends to increase resistance to disease. This, if true, offers the most cogent argument of all for housing legislation.

It should be understood that housing conditions are seldom the sole cause of disease. There must be a constitutional predisposition, hereditary or acquired. In the case of infectious diseases, the germ must be present and ingested in infective quantities. Doctors disagree also as to the mode of infection or acquirement of many diseases. Nevertheless, the burden of proof lies with the person who criticises the general view of the pathologists and quarrels with the experience of health departments and investigators. Bad housing conditions of various sorts may be real factors in the reduction of health and in the production of a variety of diseases. Improvement of housing conditions will serve to reduce the volume of preventable diseases and accidents and may help to render the lives of persons of small income not only tolerable but efficient and joyous.

State Aid for Housing.*

[BY RAO BAHADUR S. S. TALMAKI.]

V. Social & Economic Aspects of State Aid.

TO understand the various aspects of State aid for housing, Events which led to State aid. we must observe its effect on the people who have received it. But before doing so it would be well to take a brief review of the course of events which led to State aid in European countries, especially in England.

2. With the fall of feudalism in Europe the conception of individual rights took such a rapid swing in the opposite direction that every man was considered "to be an end in himself." The doctrine of *Laissez faire*. The function of the State was limited to the protection of individual liberty; everything else could be left to be adjusted by the rule of demand and supply. Each man was considered capable of protecting his interests. Labourers dissatisfied with wages or the conditions of labour might change masters just as they pleased, while masters were free to choose men on the best terms they could obtain. Similarly, tenants dissatisfied with the nature or rents of their accommodation could shift residence at pleasure, while landlords might build any way they liked, the residents being considered quite capable of protecting their own interests. On the other hand purchasers were warned to be on their guard and make the best bargains they could, and if vendors used short weights and measures or sold adulterated goods, competition was considered potent enough to check their practices. Thus in no case interference with individual action was considered necessary, the existence of the State being required merely for the maintenance of the internal peace through the police, and of the external peace through the army and navy.

* Rao Bahadur Talmaki's previous articles on *State Aid for Housing* appeared in the L. S. G. Gazette, Vol. II., pp. 552, 632, 724 and 884.

3. This economic doctrine of *laissez faire* which mistrusted
 Its evil results. ed all checks on individual action, was
 allowed to run its full course in the last
 century. But its greatest triumph proved to be the very source
 of its weakness. For it took no account of the helplessness
 of the masses due to their poverty and ignorance, nor of the
 cupidity of the profit-seeking capitalists. On the other hand,
 the growth of towns, and the introduction of steam power in
 the industries, added to the helplessness of the people. They
 worked in unhealthy surroundings and lived in insanitary
 dwellings with shattered health and morals. Age or sex
 made no difference in employment, provided it brought a few
 more pence to the needy family, and a little more profit to the
 greedy employer. At last the conclusion forced itself upon
 the public, that the only recourse against the tyranny of this
 extreme individualism was interference by the State.

4. Thus came the Factory Acts, first to protect the
 The Factory Acts. child, then the women, then the young
 person. Year after year the extreme
 freedom of the employer was brought under control and his
 Compulsory Education. responsibility defined in unambiguous
 terms by the Employers Liability Acts
 On the other hand the ignorance of the masses was sought to
 be dispelled by the spread of education. Here too compulsion
 was found necessary in the very interests of the persons to be
 benefited.

5. The question of housing, too, could no longer be left
 adrift. The change from rural to
 Seriousness of the urban conditions, the transformation of
 Housing Question. industries into a factory system, and the
 rapid expansion of trade and commerce had all aggravated
 the problem. They ushered in the jerry-builder, whose
 operations proved to be the main cause of the modern slum.
 Life in his tenement dwellings rendered any notions of privacy
 and decency next to impossible; their unhealthy condition

brought about a great increase in sickness and mortality; while drunkenness and crime became the everyday incidents of slum life. It soon began to be realised that the peoples' homes, where the workmen turned to rest after the day's labour, and where the child—the future hope of the nation—was born and brought up, could no longer be left at the mercy of the profit-seeking capitalist.

6. At last the intervention of the State was sought for remedying the evils. In England it came, in the first instance, in the shape of the Public Health Acts dating from 1848, which regulated the size of the living rooms, the height of the buildings, the improvement of the sanitary services, and so on. Another series of Legislative measures which followed were the Housing Acts dating from 1851. Here we may mark certain well defined stages of the interference of the so-called individual right and of the provision which the State felt itself bound to make for bettering the housing conditions of the masses. In the first place, the proper upkeep of private property was regulated by the first Act of Shaftesbury. Secondly, the State itself undertook the erection of the working class dwellings through Municipal authority under the second Act of Shaftesbury. Thirdly, Torren's Acts established the principle that the responsibility of maintaining his house in proper condition fell upon its owner and that if he failed in his duty the State would be justified in stepping in and compelling him to perform it. Fourthly, Cross' Acts enabled local authorities to buy up and reconstruct slum areas. Fifthly, the Housing Act of 1890 allowed financial aid by the State for increasing the supply of working class dwellings. The final stage was reached when under Burns' Act of 1909 the importance of controlling the development of building land was recognised, not only in the immediate interests of the owners concerned, but in the future interests of the whole neighbourhood and of the community at large.

7. The reason why State intervention in the matter of housing of the people became absolutely necessary was that while the landlords enjoyed all the freedom to build anyway and anywhere they liked and to raise the rents to any extent they pleased, the exercise of free will on the part of the tenants was circumscribed by various causes, the chief among them being :—

Reasons for intervention.

- (1) Residence near the seat of work or within easy access of it, for the sake of convenience.
- (2) The paucity of houses within easy reach, rendering change of residence at will almost impossible.
- (3) The general reluctance of the people to change the neighbourhood they once become accustomed to.
- (4) Absence of joint action on the part of the tenants.

Thus the intervention of the State became necessary to restore the equilibrium, on the one hand by controlling and regulating the action of the capitalist builder, and on the other by increasing the supply of houses.

8. Much has been done in England and other European countries through the health regulations and building regulations to control the action of the owners and builders of house property. But the evils which had crept in before the exercise of such control was assumed became the source of greatest trouble. Remedial measures such as total or partial destruction of insanitary property had only a temporary effect so long the supply of houses was not increased to accommodate the evicted tenants and the increase in the population. The experience of all European countries has repeatedly gone to show that private initiative has failed to give the necessary supply. The capitalist investor always bides his own time and opportunity and chooses his own way of doing things, while the small investor is out of the field owing to the numerous difficulties in his way, chief of which being the

Need of increased supply of houses through State Agency.

increased price of land, labour and materials. Thus the provision of cheap and sanitary houses for people of small means remained an unsolved problem. The State in every country in Europe has therefore taken upon itself the duty of increasing the supply of houses either by itself undertaking the construction or encouraging private agencies to do the work.

9. Whatever may be the difference of opinion among the economists and administrators regarding the question of the state or the municipalities owning or constructing peoples' houses, there is now a growing agreement on the point that unless Government afforded the necessary aid and facilities, any increase in the supply of houses for people of small means would be impossible, and that a satisfactory solution of the housing problem would be increasingly difficult. State aid for encouraging the supply of peoples' houses in European countries has now become an established fact. The modes of such aid have mainly taken the following lines:—

I. Financial Aid.—

(a) By loans (1) to Local authorities, as in Great Britain, Germany, Austria, Belgium, Denmark, Sweden, and Norway; (2) to Building Associations and Co-operative Societies, as in Great Britain, Germany, France, Denmark and Italy; (3) to Employers, as in Great Britain and Germany; (4) to Individuals, as in Great Britain, Germany, Austria, and Norway.

(b) By lending money on *Second Mortgages*, as in Germany and Austria

(c) By subscribing to the shares and guaranteeing the bond issues of co-operative building societies, as in Germany.

II. Land Policy.—By acquiring building land directly or through local authorities, and selling and letting it out on easy terms for encouraging the construction of sanitary buildings, as in Germany, Austria, Italy and Holland.

III. Fiscal Exemptions.—Especially by exempting workmen's dwellings from taxes, as in Germany, France, Italy, Belgium and Denmark.

IV. Special facilities to State employés, by constructing buildings for rental or sale or by advances of loans on easy terms for the erection or purchase of buildings, as in Germany and Austria.

10. By these various methods the Governments of European and other countries have spent millions out of public funds for increasing the supply of sanitary homes for the people. The most important method of State aid in most of these countries consists of special facilities such as long term loans at a low rate of interest, sale or lease of land on easy terms, guaranteeing interest on loan bonds, exemption of taxes on houses for the first few years, in favour of co-operative societies and public utility associations, whose dividends on share capital are limited to 4 to 5 per cent. per annum at the most.

Special concessions to
Co-operative Building
Societies.

(To be concluded in the next issue).

Personal Hygiene.

[BY DR. M. R. SAMEY, M.D., D.P.H., (U.S.A.),
M.R. san. I., (LOND.)]

Constitution.

INDIVIDUAL differences in constitution exist in different persons. Some are strong and robust, while others are feeble and weak. Moreover, resistance to disease varies with the constitution. A man with a strong or robust constitution does not fall an easy victim to disease.

The constitution of a person is partly acquired and partly inherited, and a strong constitution may be enfeebled under unhygienic conditions while a delicate one may improve under hygienic ones.

Before going deep into the question, let us consider for a moment what a constitution is. One man, we observe, is able to perform a great amount of labour, to endure hardships, to withstand the attacks of disease, and to live to a good old age in enjoyment of health and physical strength; while another man wilts under physical conditions far less adverse, like a delicate flower beneath the scorching rays of the sun. One has a good constitution; the other has a feeble one. The human body is in many respects much like a machine. Like a chain, its real strength is simply the strength of the weakest link; or, like a complicated apparatus, its actual strength is the strength of the tiniest wheel, or the most delicate pinion. A machine constructed with all its parts properly adapted to each other, none stronger and none weaker than they should be, each capable of doing its duty regularly and without undue friction,—such an apparatus may be considered as a machine with good constitution. It will many times out-wear a poorly constructed or unbalanced machine, in which undue strain is allowed to fall upon parts not prepared to bear it safely.

The inherited constitution of a person is known as “Diathesis” in medical parlance. A study of diathesis will be of interest to the person in quest of health as it will indicate the proclivity to a particular class of diseases. “To be forewarned is to be forearmed” and in accordance with this trite saying a knowledge of diathesis will be of inestimable value to “keep healthy” by taking proper prophylactic measures to avert the particular class of diseases the system is prone to.

Diatheses.—The inherited constitution of a person will tell of liability to certain forms of disease according to the diathesis. The following description of diatheses is after Professor Laycock’s descriptions in “Medical Observation and Research.”

The gouty or sanguine arthritic diathesis presents the following features: a well-developed osseous system, firm

muscles, carriage erect, a generally robust appearance; nutrition active; digestion usually good; respiration deep; large heart with florid skin, usually; large head and lower jaw, with solidly enamelled teeth, often worn down; while the hair is usually strong and thick, not falling easily. The pulse is usually firm and steady, and the blood pressure in the arteries is high. Disease of the vascular system, the gouty heart, with its almost innumerable associations, is common with this diathesis; and high blood pressure in the arteries leads to atheroma, as a permanent condition, with apoplexy, aneurism, and angina pectoris as passing conditions. Decay and fatty degeneration of the heart walls are concomitants of this diathesis.

The strumous diathesis gives an imperfectly developed osseous system. The bones of the thorax are small, the forehead is often lofty and prominent; there is a certain fulness of the lips; the teeth are carious, the lower jaw often light and thin. Hair fine and thin, often of a light hue; the eyebrows arched or very straight, often very thick and well-marked, especially in brunettes. The skin is often moist with acid perspirations. Then there is defective nutrition of the tissues. Diseases of the bones, rickets, spinal curvature occur in childhood; after puberty pulmonary consumption appears. Women of this type often have children quickly and die off prematurely. Tubercle in all its forms, from meningitis in childhood to phthisis in adult life, is found with the strumous diathesis. Syphilis usually is severe in strumous subjects.

The nervous diathesis furnishes a class of small beings rarely richly endowed with fat. Small, active, restless unwearying beings, with a small osseous framework; but with more muscular power than one would credit from their size. They are very energetic, and usually willingly carry other's burdens as well as their own. The forehead is high, and there is a well-vaulted skull, with small well-formed features and an active looking eye. They are the commonest subjects of overwork, and their nervous system often falters

from the excessive demand upon it. They are liable especially to dyspepsia and constipation.

The bilious diathesis manifests itself in a dark skin with black hair, often with a yellow tinge on the conjunctiva. Persons of this class may be large or small, active or indolent; according as the bilious element is blended with the gouty, nervous, or lymphatic diathesis.

The lymphatic diathesis is the antithesis of the nervous—large, unenergetic, listless beings, of the “fat cow” type usually. They are always “below par”, and require to be whipped up with large quantities of rich food and stimulants in order to approach to a sense of energy. They usually have a large osseous framework, but their muscles are soft and their intellects inactive. They are not usually florid, and are commonly pallid. They are never well in low-lying districts. Women of this diathesis are liable to menorrhagia, and almost always have leucorrhœa; and in parturition are liable to flood profusely. So much for the inherited constitution.

With each form of diathesis may be superimposed a cachexia—an acquired condition, *e.g.*, a person of strumous diathesis having a gouty cachexia.

Cachexia.—The gouty individual may be anæmic, or the subject of lead-poisoning, to which persons of this diathesis are very susceptible. The strumous person may have gout; the nervous individual may be the subject of malarial cachexia; or the lymphatic individual may have acquired syphilis. The leading cachexiæ are syphilis, gout, malarial poisoning, anæmiæ of varied origin, either from want of food, from mal-assimilation, from poisons formed within the body, or absorbed from without; as lead in painters, plumbers and compositors; mercury in gilders and looking-glass makers; arsenic from wall papers and other coloured objects; copper from the kitchen utensils, or tin from the tinned provisions.

Formaldehyde as a Milk Preservative.

THE absence of milk trains or special milk vans in this country adds to the difficulties of transit when milk has to be brought into the city from adjoining places. In Bombay, a large quantity of milk is obtained from Guzarat and it has been found that formaldehyde is usually added to the milk as a preservative. Formaldehyde is a powerful disinfectant and may retard digestion even when diluted to a large extent, and as it readily combines with the proteid constituents of foods, it forms a compound which is less digestible than the original substance. Hence the use of this chemical in milk is injurious or at any rate makes the article unwholesome or unfit for human consumption.

On the recommendation of the English Departmental Committee appointed to inquire into the use of preservatives in food, the Local Government Board has now issued orders to the effect that no person shall add, or order or permit any other person to add, any preservative substance to milk intended for sale for human consumption, and that no person shall sell or expose or offer for sale or have in his possession for the purpose of sale, any milk to which any preservative substance has been added.

The extensive use of formaldehyde to preserve milk exported from Guzarat has necessitated the Bombay Health Department taking similar action, under sections 415 and 416 of the Bombay City Municipal Act. The Health Officer has also introduced the following clause in the form of license granted to milk vendors under section 412-A :—

“ No buffalo milk or cow milk sold or exposed for sale by the licensee or in the possession of the licensee shall contain any preservative substance.”

Public Authorities and the Control of Street Architecture.

[BY ARTHUR F. WICKENDEN, A. R. I. B. A., F. A. S. I.,
DEPUTY CITY BUILDING SURVEYOR, BIRMINGHAM.]

THE artistic development of our cities and towns was, at a period not so very remote, a question which appeared to be only of interest to those intimately connected with the practice of the arts, and the subject rarely advanced beyond the limitations of an excellent topic for endless papers and discussions at architectural conferences and similar gatherings. To-day the lay criticisms of architectural works so frequently heard expressed or met with in newspapers are conclusive evidence that we are at least beginning to show a greater appreciation of beauty in our surroundings. This welcome indication is doubtless one of the first fruits of the artistic education now brought within the reach of the masses by our art and technical schools, and if zealously fostered is full of promise for the future.

The man in the street, instead of being content to gaze upon pictures or read about the architectural beauties of other lands, is becoming desirous of realising them in his own home and country.

The Housing and Town Planning Act of 1909, whatever else can be urged for or against it, has certainly made it possible for future towns to be developed upon artistic principles, but under the present state of affairs the improvement of our existing cities and towns not within town-planning areas is greatly hindered by the lack of any authoritative artistic jurisdiction. The question of public control of street architecture is bristling with difficulties, but in spite of the fact that we are essentially a freedom-loving people, and like to feel at liberty to do what we please with our own property, the need of some form of control is now admitted by the majority of those qualified to express an opinion in the matter. We have Acts of Parliament and by-laws enough and to spare in the judgment of many who come into collision with them to

ensure the safe construction and sanitation of all buildings, but no legislative protection against flagrant violation of recognised canons of good taste or architectural principles so that the work of incompetent and untrained designers may go practically unchallenged, excepting in the case of the limited powers exercised by certain landowners and corporations acting as free-holders of surplus lands acquired in carrying out street improvements. Even these powers are often not used to the utmost, owing to a keen desire to dispose of awkward-shaped sites.

That an intelligent supervision should be exercised over civic design would therefore appear evident, but the confronting problem is as to the extent and nature of such control.

Good and Bad Architecture.

While it is quite impossible to give a definite reply to the question, "What constitutes good or bad taste?" at the same time the answer certainly is not that it is entirely a matter of opinion. There are laws in art.

Ruskin, in his "*Stones of Venice*," writes: "No man can speak with rational decision of the merits or demerits of buildings: he may with obstinacy; he may with resolved adherence to previous prejudices; but never as if the matter could be otherwise decided than by majority of votes, or pertinacity of partisanship. I had always, however, a clear conviction that there was a law in this matter that good architecture might be indisputably discerned and divided from the bad; that the opposition in their very nature and essence was clearly visible; and that we were all of us just as unwise in disputing about the matter without reference to principle as we should be for debating about the genuineness of a coin without ringing it".

It is quite obvious that to place any hard and fast restrictions upon the details of the design of individual buildings would be absolutely fatal to the development of architectural character or to the hope of ever producing a work of genius.

The extent of any artistic control vested in public authorities should be strictly limited to the general problems of street arrangement, collective architecture, scale, alignment and environment of buildings, and the preparation of the setting to receive the separate works designed only by properly-trained and qualified architects. For example, the controlling authority should determine whether in a street picturesque charm should be gained by the random irregularity of building line and facades, or whether dignity should be attained by deliberate symmetrical planning and the due uniformity in the design of elevations.

Nature of Jurisdiction.

The subject of the nature of the jurisdiction largely revolves itself into the question of whether the controlling power should be in the hands of an individual or of a committee or board of control. The chief argument in favour of the former is that true art is the product of an individual rather than a committee. Those who advocate corporate power insist that any scheme involving the control of one man, however brilliant he might be, would lead to an undesirable uniformity of style.

I am of opinion that the most likely successful solution of the problem would be the appointment by the various local authorities of consultative committees composed of architects and artists of repute, and presided over by a chairman who was neither an architect nor artist, and who would thus be comparatively free from narrow prejudices in favour of any particular style or school of design, but who should be a man of recognised education and refined taste, and of sufficient business ability to weigh the different opinions of his expert colleagues. A schedule of the principal streets of the city or town should be prepared, and plans and elevations for all buildings which it was proposed to erect in any of these streets should be submitted for the consideration of this advisory committee, who should, after conferring with the architects concerned, report to the city or town council as to any suggested modifications in the design.

The local authorities should be empowered, if necessary, to enforce any of the amendments thus recommended before sanctioning the erection of the building.—*The Surveyor.*

Encroachment upon thoroughfares.

[BY DR. HARIDHAN DUTT RAI BAHADUR, MUNICIPAL
COMMISSIONER, CALCUTTA CORPORATION.]

The question of encroachment upon thoroughfares is one that almost every Municipality experiences difficulty in solving. The following note stating the history of the attempts made to deal with the nuisance in Calcutta was prepared by Dr. Haridhan Dutt Rai Bahadur, for the information of the General Committee of the Calcutta Corporation.

THE question of the removal and prevention of various encroachments on our public thoroughfares has been at times taken up for consideration and spasmodic efforts were now and then made. As the effect of these efforts the evil has abated to some extent but its continuance is not very complimentary to our city, the "Premier City" in India.

In Calcutta, the following kinds of encroachments are found :—

- (1) Encroachments in front of shops by projecting planks, and placing boxes, benches and other furniture—for the sale or show of goods or for accommodating customers.
- (2) Merchandise, viz., boxes of imported goods, bales of piece-goods, etc., or baskets of fruits, etc., lying long on the roads.
- (3) Petty vendors displaying their goods on footpaths, etc.
- (4) Hawkers with hand-carts kept standing on the road.
- (5) Kabulis and their goods, during winter, on footpaths.
- (6) Projection by sunshades (Purdahs), etc.
- (7) Congestion by buyers in front of shops.
- (8) Bullock and buffalo cart obstructing narrow thoroughfares.
- (9) Stray cattle causing obstruction.

Re (1)—This is found scattered all over the city but is very bad in Burrabazar, Harrison Road, Chitpore and Machuabazar. The encroachments made by the Peswari fruit sellers are the worst of all.

Since the abolition of the post of Footpath Inspector in 1904, action under Section 559 (18) is being taken. In consequence of this the Marwari Chamber of Commerce in January, 1910, moved the Bengal Chamber and the Corporation for some consideration and concession, with the result that a Committee was appointed on 22nd March, 1910, for enquiring into the matter. This Committee decided that permission under certain conditions might be granted to shopkeepers for encroachments at one anna per sq. ft., per mensem and that prosecutions be suspended till final decision. To this the Bengal Chamber agreed, and the Marwari Chamber suggested some modifications. The matter was, however, lost sight of somehow, since then.

During the time of Sir Archdale Earle, attempts were again made in co-operation with the Police but no decisive solution of the difficulty was arrived at.

In January, 1916, the Hon'ble Mr. Bompas drew the attention of the Chairman to the present condition and a letter was again addressed to the Commissioner of Police (dated 20th April, 1916). Vigorous and systematic prosecutions in some places are since being instituted. Since 1902, this question is engaging the attention of all the Chairmen, Sub-Committees, General Committees and the Corporation. The Commissioner of Police was approached several times officially and semi-officially from 1904 to 1916, but as regards sufficient and active Police help, difficulties have been experienced in obtaining that. It has been found almost impossible for the present Corporation staff to cope with the difficulty and it appears that they do not get necessary help from the Police.

Whenever the question engaged the attention of the Corporation, the Police was written to, and spasmodic efforts were occasionally made by means of temporary or incomplete expedients. The encroachments are only temporarily removed and the shopkeepers often somehow get scent of the approach of the authorities and the encroachments disappear for the time being. It should be borne in mind that there is no Municipal staff to look after the encroachments after nightfall as the staff is disbanded at 5 p.m.

It is meet and proper that the authorities should go to the genesis of the evil so that it may be properly treated.

The Peshwari fruit-sellers are the causes of much mischief; they are prone to ride roughshod over the provisions of the Municipal Act for dealing with the removal of encroachments, and they are convicted repeatedly but to no effect. The persistent action of successive District Engineers against them for the last year resulted in an increase in the amount of fines, but I cannot say they have been able to eradicate the evil. I learn that even when convicted by the Court it is extremely difficult to realise the fines imposed on them as the business of these men is conducted under various names. These fruit-sellers resort to the trick of an adjustable platform which forms a bad encroachment and which is removed in times of raid. The nuisance is of an ever-recurring nature and it has been suggested that some convenient site may be selected and acquired for accommodating all these men by setting up suitable stalls with passage running between them. This might be a source of great revenue to the Corporation and the initial outlay is likely to be recouped by *salami* etc.

Re (2)—This kind of encroachment is generally seen in Burrabazar and its neighbourhood and is not uncommon even in very narrow gullies and at the busiest part of the day. Such encroachment in Burrabazar has always been regarded to be serious and has been the subject of much correspondence between the Chairman and the Police Commissioner from 1904 to 1916. It is held that the Municipal staff is not only inadequate but powerless without strong Police assistance and that all attempts with occasional and pre-arranged Police help failed to make any permanent improvement of the situation.

During the time of Mr. Greer, the post of Encroachment Inspector was first created with a view to deal with such cases under Section 342 by organised, persistent and systematic efforts daily and regularly; it may be noted in this connection that the byelaws under Section 559 (18) were not then sanctioned by the Government. Subsequently Inspectors with two sepoy chaprasis were appointed in each district with instructions to persuade and direct the people to remove the goods by themselves, failing which to seize goods in bad cases only. In spite of this, the staff seemed to be insufficient and the late Sir Charles Allen wrote demi-officially to the Commissioner of Police requesting him to take up the task of preventing encroachments by Police staff. The Commissioner of

Police partly accepted the liability and issued necessary orders to this staff, but entertaining a great doubt about the desired result, requested prosecutions to be instituted as well by the Corporation in bad cases in accordance with the bye-laws framed under Section 559 (18).

The first European Inspector was a military officer. After him, ex-sergeants from Police and ex-guards from Railway (European and Eurasian) were appointed. In the meantime owing to strict vigilance of the staff the traders of Burrabazar struck work and the Inspector and his staff were mobbed.

The duties of this staff were then suspended at first and they were ultimately dispensed with, and since then, the work has been entrusted to the ordinary conservancy staff under the District Engineer, applications for summons under Section 342 being practically stopped and substituted by newly sanctioned bye-laws under Section 559 (18).

Just after the strike a joint conference consisting of the Chairman, Calcutta Corporation, the Commissioner of Police, the representatives of the Bengal Chamber of Commerce, the Marwari Chamber of Commerce, the Trades Association and the Bengal National Chamber of Commerce was held at the premises of the Bengal Chamber of Commerce. They discussed a proposal about the supervision and control in respect of piece-goods being taken over by the Marwari Chamber as an experimental measure. The question of providing cranes, pulleys and other mechanical appliances for easy transport of articles was discussed but was not found to be suitable under the existing circumstances in narrow lanes and for small shops. In 1912 the Marwari Chamber applied for delegation of powers under Section 559 (18) but it was rejected. Lastly the District Committee No. II on 7th December, 1916, requested the Marwari Chamber to take adequate steps for preventing obstructions and a reply was received dated 5th December, 1916, which was not considered satisfactory; so they instructed the District Engineer to report after 6 months.

Re 3 and 4.—The obstructions caused by petty vendors and stray dealers carrying on business on roads and footpaths and hawkers with handcarts are very difficult for being successfully tackled; and unless Police help is received it is not possible to extirpate the

evil. It is a patent fact that these petty dealers are systematically encouraged by the beat constables; our block sircars cannot, however, be exonerated from their share of blame for acting in some cases in collusion with these beat constables.

The encroachments on roads are certainly not justifiable and are equally objectionable at night as in day time. After 5 p.m. the Corporation staff go off duty and then they cannot be expected to do anything and advantage is taken of the fact. It should be borne in mind that in the evening there is none to look after the encroachments except the Police and unless the Police do their duty the offenders meet with no interference.

Re 5.—Obstruction by the Kabulis.—There is a great influx of the Kabulis into the town of Calcutta during the months of November and December for purchasing goods for sale in the mufussil. These homeless Kabulis obstruct the footpath of Harrison Road between Lower Chitpore Road and Mallick Street and use it formally to sleep at night on the wooden boxes containing their articles of merchandise. The latter kind of obstruction was however not noticed in the last year owing perhaps to the vigilant action of the Police based on the policy clearly enunciated by the Government in the letter of the Chief Secretary to the Government of Bengal.

After the memorable riot in 1910, this matter was taken up practically by the Police under orders of Government (letter of Chief Secretary dated 1st September, 1911) and for which the Government have set forth the policy to be adopted. (Replies of the Commissioner of Police dated 14th December, 1915 and 3rd February 1916 may also be seen). The duty of the Corporation is to watch, assist and report to Police if necessary.

This sort of obstruction on a public thoroughfare is not allowable in any civilised country; and it is high time that the Corporation should approach the Government for thoroughly eradicating the evil. These Kabulis ease themselves at night on the footpath and road and the Corporation staff has to undergo a great trouble for the prompt removal of the nuisance before daybreak. I admit that the evil has abated to a considerable extent but its continuance even in the mildest form is not in keeping with the reputation of our city.

Re 6.—Purdah or sunshades.—This class of obstruction is not of a serious nature but the following two points are worth consideration :—

(a) Permission is granted only for protection against the sun and the rain with a view obviously not to obstruct traffic at all; but it is taken advantage of in many cases for business purposes, thus obstructing a few feet of footpath.

(b) There being no Municipal staff the purdahs are in most cases not let down after sunset as required by the bye-laws.

Re 7.—Congestion by buyers in front of shops.—This is rather unavoidable and impracticable to deal with. It is a matter for the Police to see and some action should be taken against the crowd in front of shops, *e.g.*, auction shops, cold drink shops during summer, etc.

Re 8.—Congestion by bullock and buffalo carts, etc.—This is very difficult to avoid under the present circumstances; the evil may, however, be minimised by the widening of the existing thoroughfares and the construction of new roads by the Calcutta Improvement Trust. However, since the improved method of road traffic regulation by the Police there is a marked improvement and if the Police make more regulated efforts in business places the evil may be further reduced.

Re 9.—Stray cattle.—Bulls, cows and other cattle are commonly seen roaming even in our busiest thoroughfares. These are legally liable to be impounded but the Police authorities are not taking that amount of action which is necessary. This question was raised by me about 2 years ago but no satisfactory effect has been noticed. In some important roads a large number of cattle constantly cause serious obstruction to traffic. The nuisance is worse during the summer months. It is curious that the Police would not impound the animals seen roaming before the eyes of all.

I request the members of the Corporation to give this note their consideration and I trust conjointly with the help of the Police and with the judicious and sympathetic co-operation of the merchant communities of Calcutta a solution of the trouble will be obtained.

The Bombay Municipal Employees' Provident Fund.

THE Municipal Commissioner for the City of Bombay recently suggested to a sub-committee of the Standing Committee of the Corporation that the Municipality should take up on behalf of Municipal officers and servants such amounts as they may require, subject to a limit of six months' pay in each individual case, in either the 5 per cent. War Loan or in $5\frac{1}{2}$ per cent. War Bonds, and should allow the officers and servants to pay for these amounts by monthly instalments not exceeding 36 to be deducted from pay. The idea was fully approved, but it was thought desirable that the solicitors should be consulted. The solicitors advised that the Corporation could legally assist their officers and servants in the manner proposed if such officers and servants as wished to do so would agree, with the approval of the Standing Committee, to establish a Provident Fund, and if the rules of the Fund were approved by the Standing Committee.

The scheme is entirely voluntary, but the Commissioner hopes that all heads of departments will impress on their subordinates the desirability of availing themselves of the facilities proposed to be afforded to them of doing all they can to ensure the success of the Indian War Loan by investing their savings in it. The draft rules have been so framed as to enable practically every one in Municipal service on monthly pay to contribute something, and we have no doubt that when the scheme is sanctioned by the Corporation every one will respond.

At their meeting held on the 19th April the Corporation have referred the matter to a special committee for consideration and report.

The scheme formulated by the Commissioner is set out in the following Constitution and Rules of the Provident Fund:—

Proposed Constitution.

The Fund shall be called "The Bombay Municipal Employés Provident Fund."

2. Membership will be open to all officers and servants of the Municipality, whether permanent or temporary.

3. The object of the Fund is to enable members to invest their savings in approved securities by fixed instalments deducted from pay.

4. For the present all investments will be made in either the Government of India 5 per cent. War Loan, 1929-47, or in the Government of India 5½ per cent. War Bonds, 1920-22.

[By-laws for the management of the business of the society will be framed.]

5. The Municipal Corporation of the City of Bombay will, it is hoped, make contributions by way of advances to the Provident Fund to enable it to take up for its members the securities they may wish to purchase, these contributions to be repaid as the instalments are recovered by the Fund.

Proposed Rules for Subscriptions to the Indian War Loan.

1. Each applicant should state—

(a) How much he wishes to invest (the nominal value of the paper must be in even hundreds of rupees in case of bonds and of Rs. 25 or multiples thereof in the case of Post Office Section Bonds.

The maximum admissible is 6 months' pay of the applicant. Applications for Post Office Section Bonds will not be received from employes whose pay at the time of application exceeds Rs. 30).

(b) In which Loan he wishes to invest, viz:—

5 per cent. War Loan, 1929-47, at Rs. 95 per Rs. 100 bond.

5½ per cent. War Bonds, 1920, at Rs. 100.

5½ per cent. War Bonds, 1922, at Rs. 100.

(c) The denomination of the paper he requires, also whether he wishes it to be—

- (i) Bearer Bonds
- (ii) Transferable by endorsement.
- (iii) Inscribed Stock Certificate.

2. Each applicant shall agree to pay for the paper he applies for in monthly instalment to be deducted from his pay. Any number of instalments *not exceeding* 36 will be allowed in the case of bonds of Rs. 100 and over, and *not exceeding* 50 in the case of Post Office Section Bonds. Each instalment will be in even rupees in the case of Bonds of Rs. 100 and over, any balance being made up in the last instalment. For Post Office Section Bonds the deduction shall be at the rate of 8 annas a month for every Rs. 25 bond. *Examples:* A man applies for Rs. 100 War Bonds, 1922, and agrees to pay in twelve instalments. He will pay Rs. 8 for 11 months and Rs. 12 in the twelfth month. A man applies for Rs. 100 War Loan at Rs. 95 and agrees to pay in twelve instalments. He will pay Rs. 8 for eleven months and Rs. 7 in the twelfth month.

3. Any member may increase the amount of his monthly instalment, or pay at any time in cash the balance due on the securities applied for by him.

4. No deduction shall be made from the pay of any member who is on leave other than leave on full pay.

5. A separate account will be kept for each member and he will be allowed interest at the rate of the loan applied for by him, i.e., $5\frac{1}{2}$ per cent. in the case of the 5 per cent. War Loan and $5\frac{1}{2}$ per cent. in the case of the $5\frac{1}{2}$ per cent. War Bonds, on the instalments paid by him, interest to be calculated in days and paid half-yearly on 15th February and 15th August each year.

6. Any member applying for more than one bond or note will have his subscriptions credited towards the payment of each note in order and will have each note transferred to him as soon as it is fully paid.

7. If a subscriber leave Municipal service or die before paying in full the paper applied for by him, he or his heirs will be required to close the account and will have the option of either paying the balance of the cost of the paper applied for at once and taking it

over or he and his heirs must resign all claim to the notes and will receive the instalments paid *plus* accrued interest calculated up to the date of leaving Municipal service or of death, *minus* the cost of any paper already paid up and delivered.

8. The Commissioner will have discretion to allow any member who is forced to take long leave on account of ill-health or for any other good reason (of which the Commissioner is to be the judge) and who is unable to complete his subscriptions, to close his account as provided in Rule 7.

Co-operative House-building in Bombay.

SHOULD Government give financial aid to people's housing is a question which has been receiving increased attention in recent years from various quarters. We have emphasized its need in the pages of the *Local Self-Government Gazette* on several occasions. The situation has now become almost acute by reason of the present abnormal rise in the cost of labour and materials and the unusual stringency of the money market in consequence of the War. The task of improving the housing conditions of the people is therefore becoming increasingly difficult day by day, without some external aid.

The third Annual Report of the Bombay Co-operative Housing Association lends further support to our contention that without some degree of State aid no solution of the housing problem would be found to be possible. After three years' propaganda, the Association was able to bring about only three housing societies into existence. The Report informs us that during the year under report two housing societies were registered under the names of the Mangalorean Garden Homes Co-operative Society and the Bombay Catholic Co-partnership Housing Society. These and the Saraswat Co-operative Society founded in March, 1915, are the only three Housing Societies registered up to now in the Bombay Presidency.

And, out of these three Societies only one has found it possible to undertake building work.

“The Mangalorean Garden Homes Co-operative Society was registered in December, 1916. It is mainly a land society having for its object the purchase of land near Bombay for being parcelled out among those members who wish to build houses individually with their own capital. The Society intends also to build a few houses on its own behalf for being let out to the poorer members such as cannot afford to own a house individually.

The Bombay Catholic Co-partnership Housing Society registered on 31st March 1917 will build houses on the tenant co-partnership system, as its name indicates, on the lines of the Saraswat Society. They have already purchased land at Santa Cruz in the suburbs of Bombay.

The stringency of the money market on account of the war, the high prices of labour and materials, and the difficulty of obtaining loans on easy terms have made it increasingly difficult for the existing building societies to push on their work vigorously, and for more societies to come into existence. All these circumstances have emphasised the need of Government subsidies in aid of co-operative housing.”

It is earnestly hoped that the Association's representation on the subject will receive at the hands of Government the sympathetic consideration it deserves.

Reviews.

Elementary Sanitary Engineering.*

THE book before us endeavours to meet the wants of a class of public servants created in the interests of sanitary reform. During the past few years, the various Provincial Governments have established a service of Municipal Sanitary Inspectors. The holders of these posts are required to be trained in a short course of Hygiene and Elementary

* By G. B. Williams, M.I.C.E., Sanitary Engineer to the Government of Bengal. Thacker, Spink & Co., Calcutta. Price Rs. 5-8-0

Sanitary Engineering, and it is for such a course that the author has written this book.

The book consists of seven chapters, the first four of which are devoted to general engineering subjects, such as drawing, surveying and building construction. The class of men who take to this service are generally students who pass out from the High Schools, and who have little or no experience in engineering, and it is essential that some sort of elementary instruction should be given in such matters. The chapters contain only a sketchy description of the methods, materials and work involved. It should be supplemented by the students themselves by practical work and inspections of buildings, &c., during the course of their training.

The remaining chapters deal with drainage and water-supply, the former covering two out of the three chapters. Mr. Williams' intimate knowledge and experience of sanitary engineering under Indian conditions enable him to treat the subjects in an interesting and practical manner. The chapters on drainage and sewerage works deal with the systems of drainage obtaining in Indian towns, sewerage systems, house drainage and principles and methods of sewage disposal. Although only a narrow range has been covered, what has been touched upon has been clearly explained.

The portion on water supply appears to us a bit thin, dealing chiefly with sources of supply, purification of water and distribution. The note on the latter is, however, interesting and valuable. As regards rate of supply the author considers that mofussil Indian towns may be classified as follows:—

CLASS A.—Towns with less than 10,000 inhabitants with no house connections or pukka drains—5 gallons per head per day.

CLASS B.—Towns of from 10,000 to 25,000 inhabitants with open pukka drains and $\frac{1}{10}$ th of the population supplied through private house connections—9 gallons per head per day.

CLASS C.—Towns of from 25,000 to 50,000 inhabitants similar to Class B with $\frac{1}{6}$ th of the population served as above—11 gallons per head per day.

CLASS D.—Towns of from 50,000 to 100,000 inhabitants with pukka surface drains, main sewers, public latrines and dumping Depots and $\frac{1}{6}$ th of the population served as above—17 gallons per head per day.

CLASS E.—Towns of from 100,000 to 200,000 inhabitants with a complete system of sewers and surface water drains, private water closets, &c.—21 gallons per head per day.

Road watering also has been allowed for all but class A.

The above figures are for Bengal—arrived as a result of careful investigations—but they should serve as a useful guide in the design and maintenance of sewerage and water supply works in the other Presidencies.

The value and usefulness of the book would have been enhanced if it contained instructions as to the *maintenance* of sewerage and water works also. The author's great experience should enable him to give sound and practical advice in such matters as cleaning of sewers and maintaining a water distribution system efficiently and economically. Waste of water in India is as serious a problem as in Europe and America, and hints as to the prevention of waste would have been very welcome. It is, however, hoped that the next edition will be more complete and that the maintenance of sanitary engineering works will be dealt with.

The book, as it is, should prove useful not only to students in Bengal, but also in the other provinces. It is a work that no municipal or local body should be without.

Earth Boring for Water.*

Wells are in the majority of cases the only sources of water for public supplies. Time was when these were sunk in a haphazard manner resulting, in many instances,

Elements of Earth Boring for water. By K. Narayana Iyengar, B.A., L.C.B., Technical Superintendent, Sanitary Engineer's Branch, (Madras P.W.D.). Illustrated. Price Re. 1.

in failures as regards quantity as well as quality, not to mention the waste of money involved. But times have changed, and the installation of wells has now to be preceded by a careful scientific investigation. Thanks to recent advances in this subject, it is now possible to locate fairly accurately suitable sites where wells may be sunk with success.

Elements of Earth Boring for Water is a little book describing in simple language how the preliminary investigation should be conducted. In the first place, it is necessary that the locality where water is likely to be obtained should be tapped by one or more borings to ascertain the level, quality, and quantity of water available. How these borings are to be done is what the author has set himself to explain.

The subjects dealt with cover the tools and plants used—suitably illustrated—for borings in different soils, the difficulties likely to arise in their use and their prevention and remedy, concluding with a very sensible note on costs and the most economical method of using labour.

In embodying his practical experience, Mr. Narayana Iyengar has produced an excellent introduction to the study and practice of an important and interesting branch of water supply engineering, and we recommend the perusal of this hand-book to students and others connected with public water supplies, and especially to local boards and municipalities.

Legislative Intelligence.

[Bombay.]

REPORT OF THE SELECT COMMITTEE ON BILL No. VI OF 1916.

THE following Report of the Select Committee of the Council of His Excellency the Governor of Bombay on the Bill further to amend the Bombay District Municipal Act, 1901 and the Bombay Local Boards Act, 1884, is published for general information :—

We, the members of the Select Committee appointed to consider and report on the Bill further to amend the Bombay District

Municipal Act, 1901, and the Bombay Local Boards Act, 1884 (Bill No. VI of 1916), have the honour to report as follows:—

1. The new section 22A which the Bill inserts in the Bombay District Municipal Act, 1901, refers to sub-section (4) of section 22 for the necessary definition of "corrupt practice." The definition in question was framed for the purpose of the enquiry held by the judge into a disputed election and not with a view to criminal proceedings such as are now contemplated by this Bill. We are of opinion that the paragraph contained in section 22 (4) after clause (ii) ("and a corrupt practice election"), which defines the conditions under which a candidate is responsible for the acts of his agent, is somewhat too extended in scope for a criminal enactment. We propose therefore to do away with the reference to section 22 (4) and to incorporate the description of "corrupt practice" in section 22A (1) itself. In framing this definition we have taken the words "directly or indirectly, by himself or by any other person on his behalf" from section 2 of the Corrupt Practices Prevention Act, 1854 (17 and 18 Vict., c. 102); otherwise the wording is the same as in section 22 (4).

2. In sub-section (2) of new section 22A we have altered "any gratification whatever" to "any money or valuable consideration or any individual profit" for the sake of uniformity with section 22 (4), and an explanation of "individual profit" has been inserted below sub-section (4), as it appears desirable that the section should be self-contained.

3. In sub-section (4) of section 25A words have been entered with a view to preventing criminal offences under this section, which will always be of considerable local importance, from being tried summarily (see section 260 of the Code of Criminal Procedure, 1898). Although it is improbable that magistrates would ordinarily apply the summary procedure to such cases, for which we consider it is unsuitable in this country, we are of opinion that the requisite provision should be enacted in the Act.

4. By an alteration of sub-section (5) of section 22A, we have provided that the sanction of the judge (which is a necessary preliminary to criminal proceedings under the section) can be granted only when he has held an election enquiry under section 22. This alteration is important as it prevents criminal proceedings being taken unless the validity of the election has been called in

question in the manner described in section 22, but we recommend that it be adopted. The district judge will not be in a position to know any of the circumstances of the election unless the matter has come before him under section 22, and there does not appear sufficient justification for requiring him to hold the independent preliminary enquiry which would in that case be necessary for the purpose of sanction: the district judge's duties do not ordinarily extend to criminal matters which do not arise out of civil proceedings. We doubt whether occasions for criminal proceedings are likely to occur in cases where no inquiry is held under section 22, and on the other hand, we fear that under the section as originally drafted, undue facility will be given to vexatious complaints.

5. By sub-clause (6) we have laid down a time limit for prosecutions: the period is the same as that fixed by section 161, but there may be a doubt as to the applicability of the proviso in that section.

6. Sub-section (7) grants an appeal to the court of session, whether the sentence imposed by the magistrate exceeds Rs. 50 or not (see sections 408 and 413 of the Code of Criminal Procedure). We have added this provision as we think it desirable that there should always be an appeal in these proceedings, which will be of equal local importance whether the higher or lower penalty be imposed.

7. *Clause 3.*—In the Bill as published the same criminal provisions were inserted in the Bombay Local Boards Act, 1884, as were inserted in the Municipal Act. The Local Boards Act, however, differs from the Municipal Act in that it takes no notice of corrupt practices. We are strongly of opinion that the provisions of the Local Boards Act relating to the ordinary enquiry by the judge should be brought into line with the Municipal Act at the same time as the criminal provisions are added. We are conscious that in so doing we run the risk of exceeding the duty laid upon us by the Council of criticising the Bill referred to us, but we submit that, if our amendment of section 22A (5) of the Municipal Act (by which we have restricted the initiation of the criminal proceedings to cases where an enquiry has been undertaken by the judge) is accepted, a similar restriction should be made in the Local Boards Act, in which case the assimilation of section 25 of the Local Boards Act to section 22 of the Municipal Act becomes inevitable, for the enquiry contemplated by section 25 of the Local Boards Act, in its

present form, makes no reference to corrupt practices and it would be a mere accident if an enquiry were held in an election which had been vitiated by corrupt practices. For these reasons we have revised section 25 on the lines of section 22 of the Municipal Act.

8. Clause 4 is similar to revised clause 2.

9. Clause 5 embodies certain consequential amendments rendered necessary by the other clauses of the Bill.

10. We think it is desirable that the Public Prosecutor, or some one on his behalf, should attend enquiries under section 22 of the Municipal Act, and section 25 of the Local Boards Act (in the same manner as the Director of Public Prosecutions attends municipal election enquiries in England (47 and 48 Vict., c. 70, s. 28), for we think he should watch the proceedings with a view to taking steps for a criminal prosecution in cases where the proceedings in the enquiry indicate that corrupt practices have been committed; it appears unnecessary to make any reference to this subject in the law, but we would suggest that the question of making a rule for the purpose in the Rules for the conduct of the Legal Affairs of Government may be considered.

(Sd.) G. S. CURTIS.

„ P. A. DESAI.

„ F. PRATT.

„ G. K. SATHE.

„ HARCHANDRAI VISHINDAS

(subject to a minute of dissent).

„ V. J. PATEL.

„ CHUNILAL V. MEHTA.

Minute of Dissent by the Honourable Mr. Harchandrai Vishindas.

I sign the report minus the last para. which in my opinion does not fall within the scope of the report of a Select Committee but should be made subject of executive order. A Select Committee's report is concerned with the provisions recommended to be passed into law and not the machinery through which the working of the Act may be facilitated.

(Sd.) HARCHANDRAI VISHINDAS.

[Punjab.]

CONSOLIDATED GRANTS TO DISTRICT BOARDS.

The Hon'ble Rai Bahadur Ram Saran Das asked :—

Will the Government kindly lay on the table of this Council the new scheme by which consolidated grants for different purposes are proposed to be given to the District Boards?

Government laid on the table the following short note explaining the scheme :—

The scheme under which consolidated grants are allotted to District Boards has for its main object a further advance in the direction of local self-government by abolishing as far as possible all earmarked grants and thereby freeing the boards from some of their present financial shackles.

The consolidated grants which are usually fixed for a term of five years roughly represent the difference between the normal income of the board and its normal expenditure. The latter term is however interpreted in a liberal way as meaning the amount which ought to be spent annually so as to ensure that all the works and services for which the board is responsible are maintained in a state of efficiency. The new arrangement will not affect educational grants which will be continued on the old lines, while certain contributions from the boards such as those for the maintenance of non-criminal lunatics and lepers and for leave and pension contributions of Government servants employed by District Boards must be retained. All other contributions to and from the boards will be abolished.

It will be observed that the consolidated grants do not provide for expenditure on further development, but it is intended to place annually at the disposal of Commissioners, whenever the financial position admits of this, certain sums for distribution to District Boards for projects involving additional outlay. In the current year's budget, for instance, a sum of one lakh has been provided for this purpose.

The system above described has been introduced in the Rawalpindi Division with effect from 1st April 1916 and in the Ambala Division from 1st April 1917. It is being worked out for the remaining divisions.

APPOINTMENT OF DISTRICT BOARD ENGINEERS.

The Hon'ble Rai Bahadur Ram Saran Das asked :

(a) Will the Government kindly inform this Council whether there are any Government rules for selection and appointment of District Board Engineers ?

(b) Is it a fact that Engineers of certain District Boards do not possess recognised qualifications ; if so, in what districts ?

(c) If that is a fact, what led the boards concerned to make such a selection ?

Government replied :—

(a) Under rule XII-A of the rules published in Punjab Government notification No. 48, dated 25th February 1916, which reproduced in a consolidated form old rules scattered over a number of previous notifications, the appointment of a District Engineer cannot be made without the previous sanction of the Superintending Engineer of the Circle.

(b) and (c) Government has no information as to clauses (b) and (c).

GRANTS BY SANITARY BOARD TO RURAL AREAS.

The Hon'ble Chaudhri Lal Chand asked :—

(a) What are the rules regarding grants by the Sanitary Board to rural areas for sanitary purposes ?

(b) What is the amount of money sanctioned by the Sanitary Board—

(i) for towns and (ii) for rural areas, respectively during the last two years ?

(c) Will the Government be pleased to fix a minimum which must necessarily go to rural areas ?

Government replied :—

(a) There are no special rules regarding grants by the Sanitary Board to rural areas for sanitary purposes, but the policy of Government in respect of such grants is explained in paragraph 10* of the Lieutenant-Governor's Review of the Report on the Sanitary Administration of the Punjab and proceedings of the Sanitary Board for the year 1915.

* Paragraph 10 of the Lieutenant-Governor's Review is as follows :—

In several districts the adoption of simple regulations under this Act to promote the sanitation of villages has been approved, and in a number of cases villages have agreed to the imposition of taxation in order to meet the cost of elementary measures of conservancy. In such cases when there is an evident desire on the part of the inhabitants for sanitary progress, His Honour considers that the strict requirements of the rule may be waived, and that grants in aid of sanitary works may be given, provided the principle of self-help is not disregarded, even when half the cost of such works cannot be raised by local contributions.

(b) The answer to clause (b) is as follows :—

		<i>Grants to towns.</i>	<i>Grants to rural areas.</i>
		Rs.	Rs.
1915-16	...	3,56,537	15,399
1916-17	..	3,53,881	46,119

(c) Government does not at present propose to fix any minimum which must necessarily go to rural areas. The small proportion of the grants allotted to rural areas is due, not to any want of sympathy on the part of the Sanitary Board, but to the lack of suitable schemes, and if rural areas or District Boards on their behalf will come forward with practical schemes, the Sanitary Board will gladly consider them.

Government Orders and Notifications.

[Madras.]

RULES FOR THE ELECTION OF VICE-PRESIDENTS BY THE MEMBERS OF DISTRICT BOARDS.

UNDER Sub-section (1) of section 144 of the Madras Local Boards Act, 1884, the Governor in Council has laid down the following rules for the conduct of elections of Vice-presidents of District Boards.

When the Government shall have directed that the Vice-president of a district board shall be elected by the members of that board, the president of the district board shall convene a meeting of the board for the purpose of the election.

2. At the meeting summoned by the president, the district board shall proceed to the election of the Vice-president. Such election shall not be held unless the president and at least half the members for the time being of the district board are present at the meeting.

3. (1) Any member who desires or is willing to be elected must be proposed by one and seconded by another member and the votes of the president and the members present at the said meeting upon every such proposal shall be taken in the following manner.

(2) Every member wishing to vote shall write on a slip of paper the name of the candidate he wishes to be elected and place the paper in a box so constructed that the paper may be placed therein but not extracted without the box being opened. The president shall then open the box and count the votes in the presence of the members.

4. The election shall be decided by a majority of the votes of the president and members present at the meeting and voting, the president having a second or casting vote in every case of an equality of votes. The result of the election shall be declared by the president of the district board.

5. The validity of an election may be contested by a petition signed by at least three members of the district board by which the election was held and not otherwise, provided that such petition shall reach the president or office of the district board within seven days from the date of the election and shall allege specific grounds for setting aside the election on account of material irregularity in the conduct thereof or for other sufficient cause.

6. Upon receipt of such petition the president shall inquire personally or by some other officer deputed by him, into the validity of such objection or objections and may thereupon pass such orders on the matter as he may think fit; and all such orders shall be final.

7. In the event of a district board which has been called upon to elect a Vice-president failing to do so at the meeting summoned in accordance with rule (1), the president of the district board may, if satisfied that there was good cause for the failure, arrange to hold a second meeting for the election. Should the president be not satisfied that there was good cause for the failure to elect at the first meeting summoned or should failure occur at the second meeting also, the president shall report the matter to Government who shall pass such orders in the matter as they may think fit and all such orders shall be final.

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[1917

Municipal Administration during 1915-16.

I.

[United Provinces.]

AT the close of the year under review, the Municipal Bill had not yet become law; no changes had therefore been effected in the constitution and powers of municipal boards. The Lieutenant-Governor hence observes that the year was a period of quiet growth and prudent expenditure—a time of expectation of the notable changes which were shortly to deprive the municipalities of this province of immediate official guidance.

A continuous increase is said to be noticeable in the interest taken by the electorate in municipal elections, no less than 86 per cent. of the voters having attended the polls. The objection petitions which followed in the wake of these election contests were, however, marked by reckless charges of fraud, impersonation and improper conduct of local officials.

It is observed that while the average attendance of members at meetings of the boards was on the whole satisfactory, the returns of attendance at committees were much less satisfactory. The inference is therefore rightly drawn by the Local Government that while municipal commissioners are often most anxious to secure office, they are inclined to shirk the laborious and sometimes thankless work of the committees. The Lieutenant-Governor, however, trusts that when the impetus which will doubtless be given to attendance by the novelty of independent municipal administration has died down, indifference to the less interesting duties of municipal ~~administration~~ will not reassert itself.

The process of converting octroi into the simpler form of terminal taxation which has been in operation for the past few years had not been completed pending receipt of final instructions from the Government of India on the principles to be observed in applying terminal taxation. The discontent created by the introduction of the system of direct taxation alluded to in the review of the last year apparently still continues and the Local Government observe that it can only be finally allayed by the steady growth of a spirit of responsibility and public duty in the taxpayers and by the gradual appreciation of the benefits derived from the increased freedom of trade and intercourse. The benefits of direct taxation are not yet obvious in many towns; while the change of taxation at a period of marked financial depression is necessarily attended with serious difficulties.

Turning to the several items which make up the aggregate municipal income, it is observed that octroi accounts for a revenue of 31.42 lakhs, other taxes 23.5 lakhs and other sources 39.49 lakhs. It is a matter for some satisfaction to note that in spite of difficulties incidental to the present agricultural and financial depression, a satisfactory record of work was maintained during the year under collection of revenues. The pilgrim tax brought in only Rs. 8,000 against the usual income of Rs. 25,000.

The failure of many of the municipal boards to maintain their roads in good condition forms a point of adverse comment in the review of the Local Government. The maintenance of a reasonable standard of excellence in their roads is emphasized as the elementary duty of the boards and they are accordingly advised to have well considered schemes of repairs, with estimates and recurring charges carefully worked out, placed on their annual programmes.

Much activity is noticed in regard to water supply and drainage schemes. Experiments in tube wells appear also to have been largely in progress, but it is stated that the results were disappointing. The problem of maintaining the water

supply installations wherever they have been introduced is obviously presenting difficulties in the provinces and the need of a special agency for supervising them is being increasingly felt. In the large cities the demand is tending to outgrow the supply, the reserve of power is seldom adequate and the difficulties of distribution and prevention of waste are ever growing. The Local Government have not obviously reached any solution in this matter, as their review is here silent. But the importance of the matter must demand a prompt solution.

It is interesting to note that the new Municipal Act of this province provides for a standard of 5 per cent. on the normal income of a board as the sum which should be spent on the advancement of primary education. As it is, this standard has not been reached in many municipalities including some of the most important in the provinces.

The high infantile mortality which prevails in most of the towns is attributed to the ignorance and carelessness of midwives in child birth. The Lieutenant-Governor states that unless the people learn to employ trained midwives, there is little hope of any material reduction in the death rate.

The following concluding words of the Lieutenant-Governor deserve the fullest consideration of all those who are working for the advancement of local self-government in this country:—

“It is largely owing to the guiding hand of the official chairman that municipalities have now reached a position when that guidance can be withdrawn, and in dealing with the many difficulties which will meet them in the future, municipal boards will doubtless remember with gratitude what in the past they have sometimes been inclined to ignore, the wise control and the singleness of purpose of their official heads. In their absence the responsibilities resting on the non-official members will be greater and more direct; but the Lieutenant-Governor trusts that they will guard against the more immediate perils, the danger that public spirit may be stifled by the factious opposition which has been evident in

several municipalities, that enthusiasm for increased responsibility may be accompanied by distaste for increased work and that the repositories of executive power may be hampered in their activities by jealousy of their authority. If these dangers are steadily watched and averted, the work of self-government ought to be fruitful in good results”.

II.

[Central Provinces.]

There was no change in the number of municipalities in the Central Provinces during 1915-16. The Berar Municipal Law was extended to the town of Murtizapore, but the Municipal Council did not begin work.

The unpopular system of the retirement of Municipal Commissioners by rotation, which was discontinued in most of the municipalities of the Nagpur Division in the previous year, was entirely abandoned throughout the provinces during the year under report. General triennial elections were held in almost all the municipalities. The rotation system is still in force in Berar, but it is expected that the system of triennial elections will soon be introduced here also. The amount of interest taken in elections varied in municipalities.

The real municipal income rose from 26·55 to 27·84 lakhs and the increase which was mainly under octroi and water-rate, probably indicates a marked recovery in trade. The terminal tax was also in force in a few municipalities and it is reported that the imposition of this tax does not cause any inconvenience to trade.

Various schemes for the improvement of the water supply of towns were under consideration but owing to the great rise in the price of iron materials and the financial stringency due to the war, the schemes had to be deferred for the present. Drainage and town improvement schemes were also under preparation, but the same financial difficulties stood in the way of their execution.

It is reported that there has been a considerable awakening in most towns to the necessity for improving educational facilities, but in spite of some progress in this direction, much remains to be done in providing suitable buildings and in improving the staff.

The year under review was on the whole one of marked recovery from the depression which immediately followed the outbreak of the war, but the Chief Commissioner observes that it was still necessary to administer municipal finance on more narrow lines than would be possible in normal times. It is gratifying to note that the past few years have brought with them a great awakening of interest in municipal affairs, especially in the larger towns in the Provinces. The Nagpur Municipal administration has maintained its high record as the premier self-governing body of the province and manages its affairs with commendable success.

III.

[Bihar and Orissa.]

The privilege of electing their own chairmen was extended to eight municipalities during the year. The system of nomination in regard to appointment of Chairman and Commissioners now continues only in 23 and 6 towns respectively. It is worthy of note that fifteen municipalities definitely stated that the system of electing a Chairman was not suitable to their local conditions. General elections were held in 32 municipalities and were in most cases keenly contested.

It is observed that the Government gave a grant of six lakhs to the New Capital and the Patna City out of which a sum of Rs. 67,906 was spent on a portion of the combined scheme of water supply.

The Local Governments sums up the work of the municipalities during the year in the following terms:—

The key-note of the year has been activity in regard to sanitation and water-supply, and a number of important schemes are

either in course of completion or under contemplation. The restriction of Government grants, however, has necessarily delayed progress. The framing of Model Building Regulations, which largely aim at preventing congestion and securing sanitary conditions, has been taken in hand and draft rules are under consideration. The municipalities are regularly inspected by the Sanitary Commissioner and the three Deputy Sanitary Commissioners working under him, and steps have been taken to ensure that schemes of improvement suggested by these officers shall be framed with due regard to the financial resources of the municipalities concerned.

Twelve municipalities are now provided with Health Officers paid by Government. Attention is again drawn to the facilities now provided at the Sanitary School at Galzarbagh for the training of Sanitary Inspectors, half the increased cost of whose pay will be borne by Government for a period of three years, and it is hoped that more municipalities will avail themselves of the opportunity to get qualified Overseers in their employ trained in this important branch of work. It must, however, be clearly understood that municipalities should guarantee employment to candidates whom they select for training at the school. Much still remains to be done in the way of stimulating interest in sanitation and the reports of the Sanitary Commissioner and the Deputy Sanitary Commissioners only too often reveal apathy and neglect of their advice. The Lieutenant-Governor in Council trusts that Municipal Committees will take an active and personal interest in the suggestions of the Sanitary Officers.

There is need of more personal supervision in every branch of Municipal administration. While His Honour in Council recognizes that District Officers have many other calls upon their time he must insist that those who are Municipal Chairmen pay due regard to the duties of that important post. The disgraceful state of affairs revealed in the Monghyr Municipality in regard to collections can only be the result of years of neglect, while the number of embezzlements and defalcations brought to notice during the year marks the necessity of more frequent and thorough inspections. His Honour would also impress upon the non-official members of the Municipal Committees that their posts are not intended to be sinecures and that they are expected to co-operate loyally with, and to lend active assistance to, the Chairman and Vice-Chairman.

Irregularities on the part of the staff, and inefficiency in its working, do not excuse, but rather condemn, the Municipal Committee for any disorganization or financial loss which may result. Moreover, in the matter of revision of assessments, the Chairman and Vice-Chairman must be almost powerless without the co-operation of the Committee as a whole. While Municipal towns vary in prosperity, and it cannot be expected that the incidence of taxation should be the same in all, the differences between the amounts paid in taxes per head of population in various municipalities cannot be altogether accounted for by local conditions alone. For example, in Gaya, where the Municipal administration is noticeably active and efficient, the incidence is Rs. 2-4-6 per head against only fourteen annas in Darbhanga, where it is reported to be apathetic.

Deficit Budgets and Emergency Legislation.

WE are not fond of making sensational statements but we believe we are stating the sober truth in saying that in the whole history of the relations between the Madras Corporation and the Madras Government no more surprising step has been taken than the recent action of the Local Government in applying to the Government of India for sanction immediately to introduce emergent legislation to raise the rate of house-tax in Madras City from 18½% to 25%. The decision was arrived at quite behind the back of the Commissioners. A Section raising the rate of this tax from 18½ to a maximum of 25 per cent. is in the Draft Bill prepared by Government and sent up to the Corporation for criticism. This Bill was, at the time, being considered by the Commissioners at a series of special meetings. Suddenly, the placidity of their Saturday afternoon deliberations was broken in upon by an unexpected Order* of the Madras Government stating that the Government had made up their mind to anticipate the new Bill by asking for immediate legislative sanction to enhance the house-tax. Apart from the merits of the decision, the manner it was

* G. O. No. 767 M. dated 2nd May 1917.

arrived at was hardly fair or complimentary to the thirty-six worthy gentlemen who, unmindful of the heat of the season and of the pressure of their business, gave up their Saturday afternoons to the unpaid service of their fellow citizens. We hope to be able to show that, like all such decisions made in haste and without consulting the party principally interested, the Order of the Madras Government is without substantial justification.

The basis on which Government rest their case for immediate action is that the average deficit in the budget of the Corporation during the last three years was 1.79 lakhs a year and the service of the loans which have to be raised for the special works under the restricted programme will require 0.30 lakh next year rising to 2½ lakhs a year in the course of three years, and that the budget cannot be balanced by any means other than by raising the house-tax. This involves the correctness of three assumptions, viz., (1) that the expenditure cannot be reduced, (2) that the revenues cannot be enhanced under the present law, and (3) that if increased revenue has to be raised, the only feasible method is to enhance the house-tax.

We have something to say with regard to every one of these positions.

As regards reduction of expenditure, the Government Order says that no retrenchment is possible without serious detriment to important services. It is difficult for us, laymen as we are, to say on what materials the Secretariat came to this conclusion. Several members of the Corporation, who, by their long connection with it, have an intimate knowledge of its working, hold quite a different opinion and can immediately lay their fingers on the weak points if they have a chance of being listened to. In a previous issue of the *Local Self-Government Gazette**—which we commend to the notice of the Government—we have pointed out the alarming growth in expenditure since 1910-11. This is a matter for

* Volume II, p. 386.

detailed investigation and an off-hand pronouncement by the Government that reduction is not possible without serious injury to public interests is not calculated to make the holders of the Corporation purse less extravagant or more wise in loosening it. That the framers of the Corporation's budget require to be called instantly to halt is clear from the fact that just during the last three years when the deficits commenced, they have chosen to increase their expenditure by lakhs.

The Government Order is silent as to the enhancement of revenue possible under the existing Act. As a matter of fact, however, a review of the Administration Reports of the last five years shows that during the last quinquennium house-tax has been rising at a rate much faster than was anticipated even by the most enthusiastic financiers. The rise in the annual rateable valuation is no less than four lakhs. At 18½ per cent. this represents a yearly increase of Rs. 74,000. Though the average budget deficit during the last three years was 1·79 lakhs, still owing to the large accumulated balances of previous years, the first actual deficit will occur only next year, and that is estimated by Government at 2·9 lakhs. At least 1½ lakhs of this deficit will be met by the increase in house-tax and if the budget were only framed carefully, the deficit of Rs. 59,000 could be avoided ; so that, to put it at the lowest, Government could well have waited till the cold weather of 1918 before devising emergency measures in relief of the Corporation finances.

The last—but perhaps the most important—objection to the emergency legislation is that it betrays a very old fashioned habit of mind on the part of the Madras Government. To look to immovable property as the only method of raising money, whether for Imperial or local purposes, is a confession that the Government are still obsessed by financial ideas derived from *ancien régime*—the days of our Moghul Emperors. In this respect they might well have taken a leaf from the book of the Burma Government who have appointed a special Committee to devise methods for broadening the basis of

municipal taxation in Rangoon, which now rests on house-tax alone. Their idea is to add to the revenue by introducing a terminal tax and actually to lighten the house-tax.

These are days when the problem of providing adequate and healthy accommodation in large cities for the poorer classes on easy terms, is engaging the serious attention of enlightened local bodies and it does seem a retrograde step that the Government of Madras should make such provision more difficult by increasing the house-tax. For, of course, the burden of the tax will inevitably fall on the tenant. There has been in recent years a sharp rise in house rents in Madras and the time is more opportune for devising ways and means of meeting the difficulties produced by this rise than by complicating the matter still further by raising the rates. It is not the case that Madras is at present enjoying a low rate of house-tax. If we remember that the $18\frac{1}{2}$ per cent. rate is levied on the *gross* annual rental, while the other Presidency Cities make a reduction of 10 per cent. from the valuation for repairs, the rate of house-tax will easily be found to be the heaviest in India.

All things considered, the Government might well have waited for the passage of the new Bill. If there was need for emergency legislation, the better course would undoubtedly be to take up the Taxation Chapter of the new Bill at the next session and get through it first.

Set-back Lines.

MR. ROBERT H. WHITTEN, Secretary to the Committee on the City Plan of the Board of Estimate and Apportionment, New York City, has submitted a report on the plan for the establishment of set-back lines in connection with the laying out of street systems in wholly undeveloped or suburban residence sections. In America it is now coming to be recognized that the establishment of set-back lines is very essential to good town-planning,

and steps are being taken to incorporate this feature in the Municipal Acts. The English Statutes already provide for this power of setting-back building lines. The set-back line may be defined as the line that provides for a space between the street line and the front line of buildings. The owner or owners may not build on this space. The following advantages are claimed for the set-back line by Mr. Whitten in his report:—

1. *Health, Comfort and Amenity.*—In a private residential quarter of a town, a uniform set-back from the street line increases the attractiveness of the place, and contributes to the health and comfort of the inhabitants.

2. *Economy of initial development.*—This is explained by the following example:—Take a 40-foot street in a residential locality, and lay out a 10-foot set-back. If this street is in its initial stage of development with single family houses only, the actual street width for traffic requirements may be forty feet only. If later the single family houses were developed into three or four or five storey buildings, the street could easily be widened to 60 feet to meet the increased traffic requirements incident to the more intensive housing.

3. *Economy of ultimate development.*—This follows as a matter of course from the above, and the establishment of a set-back line results in economical widening of traffic arteries and facilitates street design.

We have referred to the importance and advantages of the set-back line in unbuilt areas, but they are no less urgently required in built up and congested localities. All Municipalities and Local Boards should have the power of widening closely built up streets to meet increased traffic requirements. Whenever a street assumes an importance necessitating its widening, if not immediately, by a gradual process of demolition of frontages, the Act should empower the local authority to permit existing buildings projecting beyond the proposed set-back line required for street widening to remain for a fixed period or until substantially altered, removed or

destroyed. This is a very necessary and important power, as otherwise it would be impossible, except at prohibitive expenditure, to town-plan a city which has been closely built up.

The Corporation of Madras have during the past few years awakened to the advantages of this power vested in them under the present Municipal Act. Popham's Broadway, one of the main arteries of the city, which is about 30 to 35 feet wide only, with high buildings on either side has had a set back line established, and when frontages are altered, removed or destroyed, the provisions of the Act are enforced in order to widen the street. We are already seeing the beneficial effects of this procedure, and in another five to seven years, Popham's Broadway should be one of the broad and picturesque streets of Madras.

We commend the advantages and importance of set-back lines to Indian Municipalities.

State Aid for Housing.

[BY RAO BAHADUR S. S. TALMAKI.]

V. Social & Economic Aspects of State Aid.

(Concluded from the last issue.)

THE housing question is essentially a question of credit. Why concessions are needed. The difficulty of raising the capital necessary for housing the people lies not in the lack of capital but chiefly in the organisation of credit. And this can surely be achieved through co-operative societies, if the State came to their aid in the earlier stage of their work. Capital obtainable from private sources, besides being of short term, is generally limited to half the value of the land and building together, and will, therefore, at the most, cover the cost of land and a small portion of the cost of building. The advance, moreover, will not be forth-

coming unless the building is completed. Small people require credit to the extent of 70 to 80 p. c., if not more, redeemable within a long period and at a cheaper rate of interest. And this will not be obtainable unless Government come to their rescue. When once the co-operative societies for housing are shown to be a success, they are sure to attract private capital on a large scale without much difficulty. If Government cannot afford to advance the large sums required for the purpose, it can at least give the help of its credit by guaranteeing interest on loans raised by co-operative housing societies, as it has been doing in the case of railways and other public works. In any case the housing problem will remain unsolved unless the State came to the help of the people in raising the necessary credit.

12. To the arguments which some people advance against State aid for people's homes, the experience of all the countries who have tried it will afford an effective answer. Wherever the State has undertaken the work of assistance, profound economic and social advantages have resulted. The Homestead Commission appointed by the Commonwealth of Massachusetts, after a thorough study of the housing problem in European and other countries, and of the effect of State aid thereon, make the following pertinent observations in their report submitted to the Government :—

Public benefit of State Aid. “The economic desirability of a nation of home owners cannot be overestimated. The floating population in tenements and apartments can take no more than an ephemeral interest in the welfare of their cities, towns or wards. There is no permanent home for them; they are nomads, and they naturally take but small part in the administration of their municipalities. A home owner, on the other hand, has the most direct interest in the administration of his city or town; its financial activities mean something more concrete to him than newspaper reports. By helping the individual to become a home owner the public welfare is benefited. The well-being

of the nation rests with those who have a home and a little land, and to increase that class is one of the fundamental necessities of good Government. Next to education, no State activity in our judgment would so redound to the public benefit."

13. "Public education," says the same Report, "is not primarily for the purpose of benefiting the child, or favouring the parent, but for the public welfare, which demands that illiteracy be reduced to the minimum. The existence and progress of a State depends upon the intelligence of the inhabitants. The greatest enemy of popular education is the slum. Its influences tend away from every thing that makes for good citizenship. State aid for workmen's homes is not only the use of money for the important work of promoting the general welfare by bettering social conditions; it is bound up and goes along with the education of the people. The home environment is even more important than that of the school, and the State would no more be conferring a favour on the parent or a personal benefit on the child by insuring it a wholesome home than by insuring it a common-school education. In either case the State is safeguarding its own future and promoting the general welfare."

14. "Experience, where Governments have extended State funds and credit for workmen's homes," continues the Report, "has been that private capital, far from being deterred, has come into the field in greater amounts. The demonstration made by governments of the safety of the policy of long-time payments to cover both interest and principal has helped to free private capital for similar enterprises. In no country, furthermore, has the problem of sufficient healthful homes for workmen been solved by private capital alone. Left to its own devices, the response of private capital to the enormous growth of urban population in all

civilized countries has been the erection of cheap tenements and workmen's barracks with their accompanying evils, squalor and vitiating influences. Further manifestation of its inadequacy has been its inability to cope with conditions so as to afford healthful housing at fair rents. Only where Government initiative or example, or State aid or facility, have shown the practicability of providing single homes for workmen on such a basis as to convert them from rent payers to home owners has private capital come into the field to compete for the enormous demand stimulated by the State."

15. Regarding the social evils of overcrowding, the Report further says:—"It is for the public good that the lives of thousands of young children, now sacrificed in unwholesome dwellings, should be saved. Regardless of moral obligations, or the claims of humanity, the State needs these young lives for its own up-building. It is even of more importance to the general good that the children who survive shall be reared in an environment that elevates rather than demoralizes. There is no need of the infant mortality that is due to congestion, or of the vice and crime which result when children are deprived of any playground other than the crowded streets. The beneficial effect on the health of the community of more open spaces has been proved beyond doubt."

16. The force of the weighty words quoted above can be better appreciated by reference to the figures given by Alderman Thompson in his Housing Up-to-Date relating to the cost or rather the "working expenses" which the people in the British Isles have been paying on account of the existing faulty accommodation. Here are some figures of *direct cost* to the ratepayers and taxpayers of work and institutions that would be far less expensive under improved housing conditions:—

Social evils of overcrowding.

Direct cost to the community by neglect.

Loans outstanding in 1904 were :—

Rs.	4.5	Crores on account of Cemeteries.		
„	9.0	„	„	Hospitals for Infectious Diseases.
„	14.0	„	„	Lunatic Asylums.
„	6.5	„	„	Purchase of slums.
„	20.0	„	„	Workhouse and Poor Relief.
<hr/>				
Rs.	54.0	„	Total.	

In the single year of 1903-4 alone, five and a half crores were spent for the above works and institutions out of Loans and over 22 crores out of Rates. There are besides crores spent on Police and Magistracy, for detecting, preventing and punishing crime, much of which is due to slum life.

17. There is also the *direct cost* to individuals and *indirect cost* to societies and ratepayers, through loss of employment, sickness and death due to preventable disease.

This cost must run into many crores, and though it cannot all be measured in figures, its magnitude may be partly gauged from the fact that 14 large friendly societies with 33 lakhs of members spent, as pointed out by Mr. Thompson, about 5 crores of rupees in one year (1904) on sick and funeral benefits, or nearly Rs. 15 per member. In the ten years, 1892-1901, the 100 principal Trades Unions with ten lakhs members spent over 4 crores on sick pay alone.

18. It is quite true that improvements in the housing conditions of the people cannot altogether prevent death, disease and crime, but it has been observed that there has been considerable decline of cases under these heads wherever reform in housing has taken place. For instance, in the case of dwellings constructed by the London County Council, the rates of births, deaths and of cases of infectious disease per 1,000 population in 1912 were respectively 27.5, 8.5 and 5.19 against 24.7, 15.0 and 6.15 for the whole of London. Comparing the vital statistics of Bournville with that of Birmingham

for the six years ending 1904, we find that the death rate of the former was only 7·5 against 17·9 of the latter, and that of infantile mortality of the former was 78·8 against 170 of the latter. From the point of view of child life and physical improvement also very striking results were revealed. The boys at Bournville school on an average were 4 inches taller than those in the schools of Birmingham at equal ages, and the chest measurement was also 3 inches greater. A comparison of corresponding figures of Port Sunlight with those of Liverpool also showed the same striking results in favour of the former.

19. The effect of improved conditions of housing can best be realised by observing the people
Example of Liverpool. first in their old surroundings and then in the new. This can best be seen in Liverpool where the Corporation since 1896 restricted the use of the new dwellings to persons actually turned out of insanitary houses. From 77 to 99 per cent. of the turned out people occupied the new houses, and the rents charged approximated what they paid in the old dwellings. The effect of the new and decidedly better surroundings on the rehoused people was remarkable. Mr. Turton, the Deputy Surveyor of the City of Liverpool, in a paper published in 1905 states that the average earnings of the tenants in the old dwellings did not exceed Rs. 11 per week, and that the whole belongings of each family would be overvalued at Rs. 15. To-day, in the new dwellings, the tenants add gradually to their stock of furniture, pay attention to the cleanliness of the premises both inside and outside, take pride in their new houses, and pay attention to ventilation. Many of them successfully attempt to grow plants and flowers in neighbourhoods where not a blade of grass would have grown before, and they and their families are better clothed, better cared for and obviously healthier and happier and stronger. Some of the tenants in city buildings so improve their position that they ask for and obtain better houses, and some get well-to-do and go further out into

houses built by private enterprise. It is untrue to say that these people will make slums of any place they go into. Liverpool says that in its experience that statement is wholly untrue. Fifteen years ago the people objected to be disturbed. Now some of them want to be disturbed and are anxiously waiting their turn. Those who have been rehoused have learned to value their surroundings to such an extent that money which previously went in one direction now goes in another, and they have new aspirations, new ideals and new hopes. So extraordinary is the transformation that some are inclined to disbelieve that the tenants of the dwellings are the persons actually displaced.

20. The present Head Constable of Liverpool states that rehousing means a diminution of labour for the police. In Adlington Street offences of persons residing in the neighbourhood, which in 1894 amounted to 202 fell in 1904 to 4. In the Hornby Street Scheme they fell from 170 in 1901 to 52 in 1912, and in the Burlington Street Scheme the offences fell from 46 in 1905 to 14 in 1912. Commenting on these figures, the Head Constable says that the figures are of real value because the housing department takes pains to secure as tenants those who have been dispossessed through its operations. The figures therefore indicate real personal regeneration.

21. Referring to health returns of Liverpool it is found that the mortality rate has fallen from 50 per 1,000 to 27, a saving of life of nearly 50 p. c. At one time typhus fever was never absent from the slums, and in epidemic years, it claimed its victims by thousands. During 1910, for the first time in the sanitary history of Liverpool, not one single case of typhus was recorded. In 1901, 154 people died of typhoid and this number fell to 42 in 1910. There had been also considerable falling off in phthisis cases, a rise in the birth rate and a decline in infantile mortality.

22. As to the question that housing subsidised by the State or by local authorities has a tendency to lower wages, it has been found that the occupation of a decent house under a sympathetic landlord has very often rendered the working man more independent and in a better position to demand higher wages. The experience of Liverpool, so far as it goes, confirms this and in Ireland where over 42,000 cottages have been built in respect to which local authorities do not expect to get an economic rent, wages have everywhere increased, especially in county Cork, where an exceptionally large number of houses have been built and wages have increased by 30 to 50 per cent. during the last ten years.

23. Enough has been said perhaps to show the importance of State aid to housing. All civilised Governments have now realised their responsibility in this direction, and have been bestowing on the housing question the same degree of anxious attention as on any other matter of public importance. The various reports of the Commissions and Committees appointed by different governments from time to time have invariably emphasised the need of State aid for housing. As an indication of the modern tendency showing the point of view of the State regarding the subject, we may refer to the Insurance Act of England, which provides that where any excessive sickness in any locality is proved to be due to the negligence of the Local Authority, the Insurance Commissioners have power to recover the cost of the excessive sickness from that body. From this it is clear that the State, and through it, its delegates the Local Authorities, have come to recognise most clearly their absolute duty to safeguard, in so far as they can, the health of the dwellers within their areas.

24. That the housing problem is no more a parochial, but a National and even an International, question is amply testified by the fact that International Congresses are being held from time to time to consider the subject in all its bearings. From the first Congress held at Paris in 1889 to the one held in 1913 at the Hague, all have been emphasising the

larger and far-reaching effects involved in the satisfactory solution of the problem and the urgency of the State aid required for the purpose.

25. It would be idle to deny the seriousness of the housing problem, and the responsibility of the State to afford all possible aid for its solution. The intimate relation existing between bad housing and sickness, mortality and crime has everywhere been acknowledged. The experience of the several countries who have bestowed thought on this subject, has gone to show that the direct and indirect cost to the community in allowing people to remain in unwholesome dwellings, proves in the long run to be far heavier than that required for increasing the supply of cheap and sanitary homes for them. Public funds spent on improving the housing conditions of the people is none the less a productive investment, than those spent on irrigation, railways or other like works. The magic of cheap capital in the matter of housing has been shown to produce far-reaching beneficial results on the life of the people. Public health no less than social and economic considerations therefore require that the State can no longer ignore its responsibility regarding so important a matter. Not only the persons immediately concerned but the whole community stands to gain from the provision of sanitary homes and surroundings for the poor and people of small means, whose health and happiness should be the supreme care of all enlightened governments.

Organisation of Education Under Local Bodies.*

[BY RAO BAHADUR K. SESHU AYYAR, HEAD MASTER,
MUNICIPAL HIGH SCHOOL, MAYAVARAM.]

THE various self-governing bodies now established by statutes all over the country are in charge of variety of functions contributing to the general welfare of the urban and rural population. The constitution of these bodies

* Paper read at the Local and Municipal Conference, Madras (1917).

has been devised with reference to the several powers of raising and expending funds towards the objects entrusted to their care. Capacity to represent people and powers of business management together with adequate representation of multifarious and diverse interests, have been the main considerations in prescribing the qualifications and mode of election or nomination of members of these bodies. The necessity to provide for considerations widely divergent in nature has led to particular types of constitution which however well-fitted for the discharge of other functions is not particularly favourable to the satisfactory organisation or working of various educational activities which may be necessary in the interests of the several areas over which these bodies have control. The work of education is so intimately bound up with the welfare of the people, and its importance daily brought home to all classes whose children are already attending school that several matters concerning education deeply interest and affect the whole classes of people who have not only opinions often definite and decided, but also have the capacity to take a direct part or at least give substantial help towards the organisation and maintenance of educational institutions. It is exceedingly desirable that all these classes of people should be made to realise the responsibilities in the work of the education of their children and wherever capacity to help in other ways than by money is available, such capacities should also be enlisted towards the efficient organisation of all educational activities. Since the present constitution of local bodies does not take into account the existence of such people and makes no use of interests and capacities thus existing scattered all over, it appears eminently desirable that over each district a special Board capable of organising branch Boards all over rural areas should be constituted with specific financial resources allotted to them both from Local as well as from Provincial Funds. The establishment of these special Boards would, in course of time, lead to the evolution of greater direct personal interest in all the educational institutions under the management of

this Board and its branches and among people immediately interested in these institutions. This would in a very short time lead to a general desire both for the improvement and the efficiency of these institutions as well as make the necessity for expanding these institutions more and more evident to an extent which would enable people concerned to realise the necessity for, and the justice of, a special local levy or levies in aid of education in general and more especially of the education of the poorer classes. This would thus pave the way for universal and free compulsory education.

2. The present centralised method does not make allowance for differences in the rate of progress of different areas. One and the same rigid system, suitable for the country at large, places limitations on the progress of areas capable and qualified for a more rapid rate of progress. Thus there may be districts having a more educated population capable of bearing heavier financial burdens, having greater capacity to manage educational institutions, Secondary as well as Primary, and taking direct interest in their working and organisation. At present there is no scope for the free development of these areas to their fullest capacities; should greater responsibilities be entrusted to school boards with greater control over the educational institutions, at least certain parts of the country are likely to have the liberty to expand to their fullest capacity. The Inspectorate, working under rules and regulations laid down with reference to the general level of the entire Presidency, cannot be expected to take into account special conditions of particular areas or localities to which special rules and regulations may be either unnecessary or of too restrictive a character. In the matter of Elementary Education, District Educational Boards may be trusted to have a body of Inspectors organised under their own immediate control. As in the case of Medical Institutions these inspecting officers may belong to the Provincial Service; but their services may be placed by Government at the disposal of the School Boards. Such inspecting officers will

then have greater touch with the localities in which they are serving and their work will be scrutinised by people who have direct interest in the efficient discharge by these men of their work. Further, the schools under the management of such bodies may not be all of a particular type or of a few types made to order by the Central Department of Education. Greater scope for the introduction of a variety of subjects and divergence of syllabuses and courses of studies so as to suit the same to the needs of the particular population whose interests these schools are intended to provide for, will all become possible.

3. Schools in Municipal areas, especially areas where there is a large educated population, have reached a much higher degree of efficiency in the matter of organisation and work owing to the necessity of satisfying the demands of the municipal population. Schools under Taluk and District Boards, though situated in areas where there is a large proportion of educated men, being practically free from local control and not amenable to local public opinion, have not shown the same tendency towards progressing to higher grades of efficiency demanded by local opinion. It is therefore desirable that such schools should be brought into closer touch with their surroundings by enlisting the capacity of the educated people in the immediate neighbourhood in the matter of the organisation and working of the institutions in their midst with, however, sufficient safeguards against undue meddling with the internal management of such institutions. It may be that different types of committees may have to be organised to suit the conditions of different localities. But if the main object be kept in view—that of enlisting the co-operation of educated capacity in the immediate neighbourhood—ways and means may not be wanting for organising different types of governing or advisory bodies for educational purposes of the kind referred to above.

4. Charity for educational purposes has been from time immemorial one of the recognised channels of private

and public charities in this country. The present organisation of Municipal and Board Schools has been such as not to encourage the devotion of such charities towards the improvement of these institutions. A more direct personal connection between such institutions and the peoples who have the capacity and the desire to provide for educational charities will tend to a very large extent towards the tapping of these charitable instincts for the benefit of educational institutions. These institutions are at present too officialised to call forth the spontaneous charities of well-to-do classes. The Special Educational Boards or Committees so organised may also be entrusted with larger powers of initiative and organisation of the Educational work entrusted to them. To briefly indicate some of the directions in which they can be trusted to improve upon the present system, we shall take the different Departments of Education under the management of a single body under existing conditions. In many Municipalities there are Municipal Secondary Schools on the staff of which trained teachers of high educational qualifications are employed, while in the Elementary Schools now under their management, the teaching staff is very meagrely equipped. Since, though nominally under the same management, these two kinds of schools are under the expert guidance of inspecting officers of different grades, they are so isolated that there is no touch or connection between them. If the Educational Committee in these Municipal areas had greater powers, they can bring these schools into greater organic relationship, so that the greater capacity of the Secondary School teachers may be utilised towards the guidance of schools and teachers of lower grades.

5. The Elementary Schools in places where there are Secondary Schools will then have a higher standard to aim at than what is now available to them—that laid down by the department with reference to the general conditions of the province as a whole and not availing itself of the special resources of the more advanced localities with well-equipped High Schools. Again, in the matter of provision of trained

teachers, the Training Schools under Government management train up only as many teachers as there is provision for, according to the Budget of the Educational Department. While the cry of dearth of teachers owing to the insufficiency in the number of men seeking employment as teachers, may be applicable to the province as a whole, it does not correctly represent the conditions of particular districts. The district of Tanjore, for instance, has ample intellectual forces at its command to fully equip as many Elementary Schools as may be necessary and its financial resources will also be equal to the task. The people of this district—and there are some other districts of equal rank in matters of intellectual and material resources—can also undertake the training of all the teachers needed for its own schools. Just as for the purpose of providing medical assistance, the Tanjore District maintains a Medical School of its own, the district can also maintain two or three Training Schools of its own for teachers. Further, District and Municipal Schools Committees or Boards will have greater facilities for obtaining educational labour than the centralised departments. These bodies can offer free scholarships in their Secondary Schools for would-be teachers, can devise special courses of study and even give part training in such schools and arrange for completing such training in specialised schools. In this way a large number of trained men can be got together in a much shorter time than now when the exigencies of provincial finance and of a centralised department necessarily limit the rate of educational progress in these as in several other matters. Especially, now that the people in general have awakened to the necessity for education, not merely as a means towards employment under Government but as a necessary preparation for business in every walk of life, and there is a general desire to divert the current of charities into new channels suitable for present conditions, they can, in my opinion, be trusted with these larger powers. At least the system may be carefully and cautiously introduced by a statute empowering the Local Government to introduce the system in restricted areas.

6. Thus both with a view towards providing for a more rapid development of educational institutions in efficiency and extent as well as with a view to secure greater financial assistance either by way of taxation or voluntary contributions, the transfer of educational institutions to Special Statutory Boards constituted in this behalf either independently or in some way linked to the existing Statutory Bodies appears to be extremely desirable.

7. Whilst the inspecting agency in its lower grades can very well be constituted as integral parts of the Educational machinery under the command of the statutory educational bodies referred to in the previous paragraphs, but continuing to retain its privileges as a part of the Provincial Service, the Superior Inspecting agency, the present Inspectors of Schools, could not under existing conditions be constituted in any similar manner. The character and constitution of this agency is such that it cannot, as it is, be regarded as a part of Local Educational machinery. So long as the Provincial and Imperial Governments contribute towards Elementary and Secondary education, there will also be the need to assure the proper utilisation of such funds through a Governmental Inspecting agency of some kind or other. But in so far as the present system of inspection attempts to serve a dual purpose, that of guaranteeing proper application of Government Funds and also of giving expert advice in matters of Educational detail, it cannot be said to be either entirely suitable or adequate for all our needs. Now that the industrial artisan and mercantile classes have begun to take to secondary education, a very rapid development in that department of our national education has to be foreseen and provided for. The diverse conditions of different localities and districts will have to be taken into account and their needs attended to from time to time. This can be dealt with satisfactorily by a separate superior expert inspecting agency forming an integral and responsible part of district educational organisations. The district agencies shall have to select the best of the

educationists under their command and finance them to study foreign educational systems for a year or two and then place them in a position to utilise their experience for the highest good of the educational institutions under the control of the district organisations. There is thus a need to provide an indigenous inspecting agency entirely under the control of District Educational Boards or Committees, providing for the progress and development of all the District Educational Institutions in diverse directions, while the Government educational agency should be strictly limited in its functions to the safeguarding of the Government interests in seeing to the proper application of its funds in general ; this agency cannot in the very nature of things as belonging to a centralised authority, be regarded as sufficient for a full expert direction of all the varied educational activities of a district area. Any attempt to enlarge the present Government Inspecting agency to more fully serve the double purpose above detailed should therefore be deprecated, as it cannot be expected satisfactorily to discharge functions of such a varying character.

8. Considerable misapprehension exists regarding what is called aided education in this Presidency. It is often supposed that educational institutions under private management are cheap, not only at present but are bound to be cheap under all conditions and should therefore be preferred to any other system of management. I am in a position to judge of the educational values of institutions and know that the cheapness of these institutions is due to the neglect of some of the elementary and primary needs of schools. So far as cheapness may be consistent with efficiency, the ends of both can be secured as much under the management of a statutory local body as under private management.

Village Panchayets.

[BY NEMALI PATTABHIRAMA RAU, PRESIDENT,
TALUK BOARD, MADANAPALLE.]

THE Royal Commission on Decentralization advocated the constitution of panchayets for the administration of local affairs in villages. Their proposals were in the nature of a revival of ancient institutions with civil and criminal jurisdiction and therefore made the Panchayets independent of the District and Taluk Boards, financed by assignments from land cess, receipts from markets etc., fees in civil suits and grants by Local Boards. They advocated the abolition of the existing Union Panchayets and their replacement by village panchayets as proposed by them, or in villages of a more urban character by a kind of embryonic municipal council or town panchayet. Although the Government of India were not in favour of the abolition of the existing Union Panchayets, they agreed in the main with the recommendations of the Royal Commission even in regard to conferring judicial powers on panchayets and wanted also to give those bodies powers of permissive taxation.

2. The Government of Madras in G. O. No. 1401-L dated 2nd October 1915 did not accept the proposal to abolish the existing Union panchayets but agreed to remove the causes which tended to make their working unsatisfactory. The clubbing of two or more villages was, the Government thought, one of these unsatisfactory features and it was laid down that a Union should as far as possible consist of a single revenue village. The reduction of establishment so as to set free more funds for expenditure on works of utility, the removal of restrictions as regards the levying of taxes so as to give the panchayets a free hand to raise taxes on any scale according to their necessities and the introduction of a system of election in the composition of the panchayets would, they thought, make the Union panchayets more popular. Collectors were accordingly requested to examine the circum-

stances of all revenue villages containing a population of three thousand or upwards and report whether they could be formed into Union Panchayets.

3. In addition to Union Panchayets under the Local Boards Act modified as above, the Government also suggested the formation of what are called *Informal Panchayets* constituted on a voluntary basis and without legislative sanction with a view "to promote common action for all approved common purposes," such as the control of village sanitation, the enforcement of vaccination, the execution of the less important local works, the management of cattle pounds, markets and fairs, the construction and maintenance of village school houses, the control of tanks, fisheries, cattle stands, threshing floors and other property belonging to villagers in common, the management of turns of irrigation, the enforcement of kudmaramat and the maintenance of fodder and fuel reserves and the management of village forests. The Government were not, however, inclined to entrust them with any judicial powers or functions although they recognized "the force of the argument that it is desirable to stop the waste which is involved in allowing petty civil and criminal disputes to be carried to the ordinary district tribunals."

4. The Union Panchayets formed under the Local Boards Act with power of taxation, bereft of the restrictions and limitations with which they are now circumscribed, will perhaps turn out to be more popular and useful institutions. But it has been found during the year that has past since the issue of the Government Order above referred to, that to bring into existence informal panchayets which have to finance themselves by voluntary contributions is not an easy matter and that although individual Government Officers by the influence of their office brought them into existence in some places, they either died after a six months life—the period for which the first contributions were levied—or are languishing for want of sympathetic response. The chief causes for this failure of

informal panchayets is that people are not sufficiently educated to realize their responsibilities and consequently are unwilling either to loosen their purse strings or render personal service for communal works. If funds are provided or resources are pointed out, it may perhaps be possible to find some response in the shape of personal service. This aspect of the situation was fully realized by the Chittoor District Board and at an informal meeting convened by the Collector President, Mr. H. L. Braidwood, I.C.S., on the 12th December last, it was unanimously "agreed that all panchayets require some financial assistance to help in meeting the expenses of sanitation, water supply, roads, lighting and other purposes involving expenditure. Without grants such duties cannot be entrusted to them." It was further resolved that

"(1) The income from village sweepings, Government amroy, local fund avenues, fisheries, markets, fairs, cartstands, and cattle stands within the panchayet village, should be collected and spent by the panchayet,

"(2) the surplus income from the cattle pound, if any, in the panchayet village should be handed over to the panchayet,"

"(3) Taluk Boards should give subscriptions to panchayets equal to the amounts raised by voluntary subscriptions in the villages."

The duties which the Panchayets are to perform are :—

"1. The panchayets should arrange for sweeping streets, removal of prickly pear from village sites, proper roads, cart-tracks and foot paths,

"2. They should attend to the general sanitation of the village, enforce the cleaning of back-yards, the filling in of insanitary pits and the prevention of nuisances generally,

"3. The panchayetdars should consider it one of their important duties to help vaccinators in procuring cases for vaccination,

"4. The panchayet should be entrusted with the management of markets and fairs,"

“5. The panchayet shall be a committee for supervising village schools,”

“6. The panchayets will be entrusted with the conservancy of D. P. W. tanks, the sales and management of fisheries in all tanks, the management of cattle stands and cart stands, and sale and management of amroy,”

“7. The panchayet will be entrusted with the distribution of water from all irrigation sources of which the ayacut belongs entirely to the panchayet village,”

“8. The panchayet should assist the village headman and Tashildar in enforcing Act 1 of 1858,”

“9. In the event of new forest panchayets being formed for villages having a panchayet under the present Government order it is recommended that the forest panchayet be composed of the members of the ordinary panchayet.”

The above recommendations of the informal meeting have been approved, I believe, by the several Taluk Boards in this District and have been forwarded for the consideration of Government. It may not perhaps be necessary to have recourse to legislation for giving effect to the above recommendations. If they receive the approval of Government, it may be possible to bring into existence informal panchayets which will in course of time render themselves fit for exercising higher and larger powers. The omission to confer on them judicial powers and functions need not stand in their way of proving themselves useful popular bodies and it is hoped they will form important schools of training for higher public life in this country.

Sir Harold Stuart, at a meeting of the Legislative Council, announced that Government would introduce shortly a Bill for constituting village panchayets for exercising judicial and criminal functions. When these panchayets come into existence, the members of these informal panchayets will be available to form such panchayets.

A few suggestions regarding the amendment of the Madras Local Boards Act, 1884.

[BY T. V. RANGACHARIAR, MUNICIPAL CHAIRMAN, CHITTOOR,
AND EX-PRESIDENT, TALUK BOARD, CHITTOOR.]

II.

(The first article appeared in the April issue of the Gazette.)

The Finances of the Boards.

THE question of augmenting the resources of the Boards may be considered under two heads:—(1) Existing sources, and (2) New sources.

(1) EXISTING SOURCES.

9. Of the existing sources the only head under which any appreciable increase could possibly be effected is the land tax or otherwise called the road cess. A proposal was made that the maximum should be raised to 2 annas in the rupee all over the Presidency. The proposal was referred by Government to all Local Boards for an expression of their opinion after sounding the opinion of the public. I believe nearly all the Local Boards, backed up by public opinion, have expressed themselves against it. In the face of this strong expression of opinion, one finds it difficult to express an opinion which may appear to run counter to it. There could not be any objection to an increase of the maximum, for this would not necessarily mean an actual increase of the tax. The actual increase of the tax up to the maximum or to any amount within the maximum is a matter that has to be decided by individual Boards. Apparently therefore the objection is due to some extent to a want of confidence in the Boards as they are at present constituted and in their representative character of the public opinion, and this is really at the bottom of the opposition. Even taking the members and the Boards as they are, I am of opinion that the maximum could be safely increased say by 6 pies in the rupee, with suitable safeguards as regards

the purpose for which the increased income should be applied and the period of its levy. The question of village roads is a very important one, in the solution of which depends the economic prosperity of our rural parts. So also is the question of bridges. There are several big streams and small rivers here and there in the District which have not yet been bridged, with the result that traffic has been interrupted off and on in the year, sometimes for a length of time. In regard to both these matters Government have realised their importance and have given subventions during recent years; but they have been found to be inadequate. Government have been giving grants for village roads on the condition that their future maintenance should be borne by the Local Bodies themselves. But most Taluk Boards could not find funds for their maintenance nor have they even sufficient funds for the maintenance of the existing roads. The result has been that several of the Boards have not been able to utilise the grants towards the opening of village roads strictly so called and such of the Boards as have actually utilised it in the opening of village roads are unable to maintain them. Roads so opened out with no prospect of their being maintained in future years had better not been opened out at all, for money spent on them is so much money thrown away.

In the case of bridges, Government when appealed to for assistance very often promised to give a grant of one-half of the expenditure provided the Boards would find the other half. The Boards finding their inability to find this half have had to shelve the schemes. As an example, I may cite the instance of the Swarnamukhi bridge in my own District. That a bridge between the Kalahasti Railway Station and Kalahasti town to bridge the Swarnamukhi river is very important and urgently wanted is admitted on all hands. The Government promised the one-half contribution but the District Board had to shelve the scheme, being unable to find the other. If the maximum of the land cess is raised, a very small extra levy (say 1 pie in the rupee) would suffice to maintain the village roads, or an extra levy within the maximum for a limited

period would find funds for the bridges wanted. The levy need not be even general but may be restricted to the area that is likely to be benefited by the proposed scheme. I would therefore advocate that the maximum be raised but subject to the above restrictions that the increased revenue over and above the existing one anna should be raised and utilised only for certain specified purposes and under the conditions indicated above. The purposes and restrictions, if embodied in the Act, ought to suffice to allay the existing apprehension on the part of the people.

10. If the above increase under land tax is not approved, I would suggest a suitable amendment to clause (ii) of section 57 by making the following addition "or for the construction of bridges costing over Rs. 10,000 or for making and maintaining village and Railway feeder roads." If this is accepted, no charge under land cess need be made.

11. Under house tax the existing classification as contained in Schedule A of the Act should be done away with and a percentage system of assessment should be introduced based on the annual rental, actual or probable. If the percentage system based on rentals is found unsuited to such of the Unions as have adopted the capital values instead of the rentals as the basis of assessment, the existing classes may be increased by a few more classes and the maximum assessment also slightly increased. Both the methods may be legalised leaving it to the District Boards to choose the one or the other for their Unions.

12. Under tolls, a levy of higher rates on Motor vehicles may be sanctioned.

13. I would add the following clause to section 56 :

"All fines and penalties levied by the Taluk Board under the provisions of this Act." The necessity for this is obvious. For instance, penalties levied by the Taluk Boards in regard to encroachments on Taluk Board roads now go to swell the revenues of the District Boards. This is very inconvenient and irregular.

(2) New Sources.

14. Foremost of the suggestions made under this head relates to the obligations of the Government towards the Local Boards. One of the heaviest drains upon the resources of the District Boards is the improvement and upkeep of the trunk roads. The origin and history of these roads make it sufficiently clear that they are more a legitimate burden upon the Provincial or Imperial revenues than upon those of the Local Boards. Local bodies should be relieved of this burden which will enable them to find funds for other much needed purposes.

15. Government are now giving each District Board a certain amount of recurring grant for communications and other general purposes and also certain non-recurring grants most of which have been stopped since the outbreak of the war. One important feature about these grants (particularly the non-recurring) has been, that there has been no definiteness or certainty about them. District Boards could not take credit for them in framing their budgets and when it comes, it comes as a windfall and the consequence has been that there has been nothing like a definiteness or continuity about the programme of works undertaken by the Boards. It has therefore been suggested that the grants should be made more definite and that they should take the form of assignments by Government to Local Boards, of portions of certain imperial or provincial revenues or of surcharges upon certain of such revenues. It has been suggested that one half of the assessed taxes or one fourth of the abkari revenue in each District should be made over to the District Boards. Assignment of pound revenue and of a cess on income-tax have also been suggested. These suggestions raise big issues and are complicated with Provincial and Imperial finance. I do not therefore propose to discuss them beyond indicating them here.

16. Levy of profession tax in Local Board areas may be pointed as another new source of income. The liability of the residents of the rural parts (excepting the Union

areas) now consists solely in the payment of the land or road cess at 1 anna per rupee. This is a burden entirely upon the land owning classes. Merchants, money lenders and others owe no liability at present and these are benefited as much, if not more, by the facilities of communications, etc., afforded by the Local Boards, as the land owning classes. The proposal to levy a profession tax appears therefore reasonable.

17. Levy of pilgrim tax in important pilgrim centres has also been suggested.

18. Levy of water tax in Union areas for minor schemes of pipe-water supply is another, the need for which is obvious and need not be discussed.

19. As to this question of revenues there are two matters which relate to their collection and which require consideration. Section 92 is very defective in my opinion and requires to be amended. The section, as it stands, does not cover cases (which are unfortunately too numerous particularly at Municipal toll gates) where carriages go right up to the toll gate and unload their passengers and escape all liability from payment of tolls. The passengers are put to no inconvenience because they get into carriages which are waiting at the other side of the gate. The roads are substantially used in such cases and there is no reason why they should escape liability. If the section is amended so as to make persons liable who stop within a distance of one-fourth of a mile and unload their passengers or goods, the practice is sure to stop on account of the obvious inconvenience to unloading in such a case. Municipal toll gates should also be empowered to make a similar levy and the District Municipalities Act suitably amended on account of the contribution which the Municipalities are bound to give to the District Boards. I would therefore recast the former portion of the section as follows:—"If any person with any carriage, cart or animal goes over or goes off or passes from any road on which

a toll bar, gate, or gate-keeper's station has been constructed under the provisions of section 89 or stops on the road within a quarter of a mile of such gate or gate-keeper's station evading or with intent to evade the payment of any toll, etc."

20. The other matter in connection with the collection of revenue relates to choultries and travellers' rest-houses. I would amend section 93 by adding the words "Choultries, travellers' rest-houses" between the words "slaughter houses" and "markets". A comparison of the language of Clause VII of section 57 with the language of this section will show that the words proposed to be added which find a place in the former have been omitted in the latter. The omission may have been intentional as it may have been thought that no difficulty could arise with collection of such fees. But cases have arisen where payments have not been made and also cases where they have been refused, sometimes on most flimsy grounds. To mention only one instance, a European Inspector of schools after having stayed for some days in a traveller's bungalow left the bungalow leaving a note in the fee-book that he declined to pay the fees as his stay was made uncomfortable by the presence of a Motor Roller in the compound which was not then worked, and by its accessories having been placed in a portion of the verandah of the building. Registered notices were of no avail and it was not till a letter was sent to the Director of Public Instruction that the fee was sent! As the law now stands, the Boards can only sue in cases of non-payment. Having regard to the fact that the amounts involved in such cases are often times petty and that it may not always be possible to trace the whereabouts of the travellers when they have gone, it seems very necessary that the section should be amended as proposed.

(c) MISCELLANEOUS AND GENERAL MATTERS.

21. I may best deal with this subject by taking the sections that require modification in the order in which they appear, adding a few remarks wherever necessary.

Section 98 (2). After the word " building " in line one add " or makes such encroachment " and after the word " building " in line 7 add " or made such encroachment ". The dropping of " encroachment " in section 98, clause (2) makes it now necessary that the matter should go before the Board even for a preliminary notice under section 98A clause (2). This leads to delay.

Section 98 C (2) and (3). It appears to me that these clauses may be modified so as to confer powers on Local Boards to collect the penalty levied under clause (1) by issue of distraint warrants leaving it open to the defaulters, if so advised, to lodge a complaint before a Magistrate and seek his intervention for refund. It is not clear what exactly is the scope of the Magistrate's enquiry under this section. Encroachment cases are generally very carefully inquired into and in all cases inquiries are also made by the Revenue Department and in many cases by the Engineering Department before the matter goes before the Local Boards for levy of penalty. The aggrieved party has always his remedy before the civil courts and I think Local Boards may safely be given these summary powers as they are not likely to give room for litigation without good grounds.

Section 108 (1) and (2) proviso. Under this clause a qualified Medical Practitioner should also be enabled to give a certificate.

Section 117A. The word " perishable " may be omitted and the word " fuel " may be added after " food. "

Section 117E. The maximum limit of Rs. 100 should be abolished because there are instances where by competition more was offered but the same could not be accepted as the law prescribed a maximum. The word " fuel " may also be added to clause (1).

Section 143A limits the application of the provisions of the section to Unions only and the need has often been felt for such a provision for the rural areas also. If rural sanitation has to be improved, such a provision is absolutely necessary.

Section 152A. Under this section District Boards should be enabled to frame building bye-laws for such of the Unions as they may deem proper.

22. Presidents of Local Boards and Chairmen of Unions should be given powers to summon persons to appear before them to produce documents in connection with any inquiry or investigation that they propose to make, such as, for instance, encroachment cases, house-tax assessments, or appeals, etc. Penalties should be prescribed for default of appearance after service of the summons. Experience has shown that the want of such powers has caused inconvenience

Treatment of Cholera.

WE desire to draw the attention of Municipal Councils to the arrangements which are being made by the Calcutta Corporation for the treatment of cases of cholera among the poor. The scheme aims at having a well-equipped staff of trained hands who can be utilized at the shortest notice for treatment of cholera cases on modern methods.

During the cholera epidemic of 1916, the District Committee, District IV, suggested that arrangements should be made for treating cases among the poor. The Health Officer consulted Sir Leonard Rogers and reported that the modern treatment of cholera involves estimations of blood pressure, specific gravity of the blood, etc., that the technique of intravenous saline injections under strict aseptic precautions would be by no means easy particularly in a hut and that the risks from tetanus, air-embolism, etc., in a dirty dark hut would be too great to run. The matter was dropped for the time.

Government have taken up the question of providing facilities for the treatment of cholera by the injection of hypertonic saline solution and are taking steps to arrange for instruction in this method of treatment being given to Sub-Assistant Surgeons likely to be placed on cholera duty and to provide the necessary apparatus at the Hospitals at District

Head Quarters. Government believe that the number of medical men in Calcutta who are conversant with this system of treatment is at present small and that their charges are too heavy for the poorer classes to avail themselves of their services. Government therefore suggested that the Corporation should arrange on the outbreak of epidemics of cholera for the employment of a medical staff trained in this method and having the necessary equipment for the treatment of the poor at their own houses.

Government were informed of the apprehensions of the Health Officer, but they have consulted Sir Leonard Rogers who approves of the proposal if properly trained men are employed and has expressed readiness to give Corporation Medical Officers a practical training in his ward at the Medical College Hospital. In view of the advice given by Sir Leonard Rogers, Government have suggested that the experiment may safely be tried provided trained men are employed.

The Health Officer has selected 8 Medical and Vaccination Inspectors (all possessing Medical qualifications though not L. M. S. or M. B.) and the first batch are undergoing training which will take about 2 or 3 weeks. The training has been arranged so as to cause as little dislocation of the ordinary work as possible.

It is proposed to have at each of the District Offices a set of the apparatus required for making the transfusions. Parke Davis and Co.'s outfit is recommended by Sir Leonard Rogers and will cost Rs. 150 each.

Personal Hygiene.

[By DR. M. R. SAMEY, M.D., D.P.H., (U.S.A.),
M.R. San. I., (LOND.)]

Heredity.

CLOSELY allied to the subject of constitution is heredity over which an individual has little or no control. "To be well born is the greatest of human felicities," says a well-known philosopher. Thousands of

human beings receive from their parents a heritage of boundless wealth in the line of lands, houses, and bank accounts, but the direst poverty as regards that most valuable of all treasures—health. The child who inherits from its parents a frail and feeble constitution, incompetent to cope with the exigencies of life, without the physical vigor necessary to sustain the effort required to prepare for or to lead a life of usefulness, has an evil heritage for which no amount of money, good name, or worldly wealth can compensate. On the other hand, the man who inherits from his parents a sound body and a large fund of vitality, may well consider his legacy a rich one, although he may be born in obscurity and indigence.

That children inherit from their parents peculiarities of temperament, complexion, expression of countenance, even peculiarities of gait, are matters of common observation. "Like father, like son," is a trite proverb which applies to grandfathers and great grandfathers, grandsons and great grandsons, as well as to fathers and sons. Can it be questioned then, that a father transmits to his son his quality of lungs, liver, heart, brain, and nerve, as much as his external form?

The transmission from parents to children of constitutional weaknesses and tendencies is exceedingly frequent. Consumption, scrofula, debilitated stomachs and livers, disordered nerves and insanity, to mention a few, are examples of such "Bad Legacies."

The victim of an evil inheritance need not despair, though he must struggle against obstacles which are planted in his very constitution. There is a way of escape, if he will avail himself of it.

The individual who has inherited morbid physical, mental, and moral tendencies, should acquaint himself with the real nature of his weakness, and earnestly set to work to fortify himself in that particular. If there is inherited predisposition to consumption, let him avoid every exciting and generating cause of that dread disease. While still quite young, let him

pursue such a course of physical culture as will result in expansion of the chest, and develop the breathing powers to their fullest extent. Let him carefully avoid such exposures as are likely to produce catarrh, sore throat, cold on the lungs, etc. Let him carefully secure an ample supply of fresh air at all times. In the selection of a life occupation, let him avoid sedentary employments, such as book-keeping, teaching, and other occupations which require confinement in-doors, often in a vitiated atmosphere. Let him select some light but active muscular employment which will take him largely in the open air; and let him remember all through life that he has a weak point, that he cannot afford to run any of those risks of injury to his breathing organs which many others seem to incur with impunity. By this extra care, he may not only avoid the natural result of his constitutional tendency, but may so far eradicate it that in his children the weakness may be much less apparent, if not wholly obliterated; and by a similar course on the part of each successor in the line of descent, the evil heritage may at last be wholly wiped out.

Similarly, a scrofulous tendency may be kept in abeyance, and finally eradicated. A man whose heritage entitles him to life-long suffering with scrofulous maladies of various characters and various degrees of loathsomeness, may, by scrupulous attention to all the laws of hygiene, by means of which his vitality may be re-inforced and his physical stamina established, go through a long life-time without realizing the results of his morbid inheritance, and transmit to his children a better constitution than that which he himself inherited. Such a person should carefully avoid excesses of every description, particularly excesses and errors in diet.

The dietary should consist chiefly of fruits, grains, milk, eggs, and the better class of vegetables. Flesh food should be sparingly used, and gross animal fats should be wholly discarded from the dietary. An abundance of nourishing but simple food, such as may be easily digested and rapidly

converted into good blood, should constitute the bill of fare of such an individual. Special attention should be given to cleanliness and exercise in the open air; and temperance and moderation in all things should be assiduously practised by such an individual.

The young man who finds himself an inheritor of a weak digestion or sluggish liver, should scrupulously avoid all those causes which are recognized as efficient producers of stomach and liver disorders. Simplicity in diet should be the rule of his life. The avoidance of sweets, fats, condiments, excesses in the use of animal food, and excessive eating, even of wholesome food, he should consider as binding upon him as the precepts of moral law. He should lay down for himself the most rigid rules for the government of his dietetic practices, and religiously adhere to them. By this means, the digestion may gradually be made stronger, and even inherited dyspepsia finally outgrown.

The man whose inheritance is a weak nervous system, who has irritable or sensitive nerves, should at an early period in life set about caring for this part of his organization by avoiding excesses of every sort. His stock of nerve force is low and he must economize his expenditures in every possible manner. Extravagant drafts upon his nervous system should be most scrupulously avoided. By this means he may hope to counteract the effect of the bad heritage, and save adding one more to the great army of sufferers from a wrecked nervous system, to be found in every civilized land. Such a person should above all cultivate evenness of temper, calmness of mind, coolness of judgment, and self control. By the aid of such efforts as these, he may hope to keep at bay the multifarious foes which threaten to assail him in the guise of neurasthenia, or nervous exhaustion, and numerous forms of nerve disorders.

The man who knows that he is born with a mental drift towards the mad-house, should industriously cultivate a

penchant in the opposite direction. Let him avoid excitements of every description. Let him hesitate long before undertaking any enterprise which demands severe and continued mental strain. Let him recollect that his physical machine has a weak spot in it, and that it must be run at a low pressure. He must learn to be quiet, to go slow, to be moderate, to take the world easy, and to keep cool. Such a man may go through a long lifetime without a mental breakdown, by the use of proper precautions; whereas, if he neglects them, a sudden and unusual strain may at any time destroy his mental equilibrium, and send him to a lunatic asylum.

THE LIQUOR APPETITE.—A boy who is born with a natural taste for liquor or for the indulgence of other stimulants, should know that the natural liking for these poisons does not in the slightest degree lessen their injurious effects upon the body. The appetites themselves indicate a morbid condition of the nervous system, which, while it produces an intense craving for stimulants and narcotics, renders the system less able to withstand the deleterious effects which their use invariably produces. No man, no matter how strong his hereditary liking for stimulants, is absolutely compelled to resort to their use. If such a man will contend against the disposition with sufficient vigor, he may thoroughly master the morbid appetite; the conflict may be a bitter one, but one who makes an honest and persistent effort, will be a victor in the end.

The youth who finds himself the unfortunate inheritor of strong and clamorous passions which, unrestrained, will lead him down to physical and moral death, certainly has before him a physical and moral conflict, compared with which the bloodiest fight is but a playful game. By nature, he is destined to be an easy prey to the siren voice of the tempter. A life of temperance, sobriety and purity will gradually subdue the clamouring penchant. Religion affords a source of never-failing strength to him who devoutly seeks its aid.

Thus it will be seen that even those who are heir to disease, infirmity, and vice may by persistent efforts escape the dire calamities which are the natural results of the physical bias of their constitutions.

The appearance in one individual of traits not possessed by his parents, but known to have belonged to his more remote ancestors, is termed 'Atavism.'

Idiosyncrasies.

By idiosyncrasy is meant a peculiar susceptibility of some persons to be influenced by certain morbid agencies or medicinal preparations, *e.g.*, the appearance of nettle-rash with some as a result of taking shell-fish. The why of them is often quite unintelligible. Thus one person cannot take milk, while others cannot eat an egg. Then others cannot take quinine, or can tolerate some forms of iron only. To one few tonics are endurable, while another seems only to be worse for every conceivable form of neurotic. The intolerance of opium and mercury by certain persons is well known.

Idiosyncrasy connotes in brief certain combinations, varying widely in different systems, of the individual diatheses enumerated elsewhere, with pronounced characteristics.

Purifying the Water Supply.

[BY FRANK KOESTER, CITY PLANNER AND CONSULTING
ENGINEER, NEW YORK, AUTHOR OF "MODERN CITY
PLANNING AND MAINTENANCE."]

AMONG the basic and fundamental functions of a City there is none of greater importance than that of water supply: However beautiful and attractive a city may be made, if it runs a befouled and death dealing fluid through its water mains it is but a whitened sepulchre and a mockery.

No city without a water purifying system, unless it has a source of naturally pure water, can in reality have any claims to being considered a civilized place of residence.

Millions are spent on pumping plants, yet but little goes for purification. An evidence of the fear in which the water of many cities is held is shown by the numerous and highly prosperous so-called spring water companies. The amount of money spent by the individual members of the public of any large city for such water would undoubtedly suffice for a purification plant for the whole water supply of the city.

The essentials of a pure water supply consist of properly controlled catchment areas to collect the precipitation, an impounding storage basin, a filtering plant and, if the supply is not by gravity to the consumer, a pumping station and finally the distributing system. For some cities artesian wells may take the place of catchment areas.

The water at no time should be subject to contamination, especially after being filtered. Where open reservoirs are used they should be so protected that no possible access can be had to them except by the officials and employees.

The purification of water is accomplished by a number of different processes adapted to the different kinds of water to be treated. Such processes may be briefly classified as follows:

Mechanical separation, which is accomplished either by gravity in the form of sedimentation or by adhesion and screening, as with scrubbers, filters and screens. This method is the one most widely used.

Sand filtration as compared with the so called mechanical filtration is a natural gravity filtration method, slower in action and subject to certain limitations—that is, a greater area for purification is necessary—and it is not successful in cleaning turbid river waters of the finely divided clay contents. It is, however, the second most widely used method in the United States and is in Europe proportionately more widely used.

Chemical purification, necessary with water of a certain character, accompanied by the introduction of carbonate of

lime, etc., to soften the water and for the removal of iron and objectionable acids.

Biological processes, accomplished by oxidation of organic matter by its use as food for organism, which effect its destruction, and by the death of the objectionable organisms as the result of unfavourable conditions artificially produced, such as the absence of food and presence of antagonistic organisms, the remains then being removed by the purification process.

Aeration by evaporation of gases held in solution, the cause of objectionable tastes and odours; evaporation of carbonic acid, a food supply for some kinds of growths, and the supplying of oxygen necessary for certain chemical purifications and especially necessary to support growths of water-purifying organisms. Aeration is accomplished by exposing the water in thin sheets to the air, as in falling over dams or overflows, and by pumping it up into the air out of a pipe, as in the form of a low or bubbling geyser.

The Keeping of Records at Sewage Disposal Plants.*

[BY C. G. WIGLEY, CHIEF OF THE BUREAU OF ENGINEERING
STATE DEPARTMENT OF HEALTH, TRENTON, N. J.]

THE records kept at a sewage disposal plant should be of two types: a diary kept by the attendant, which would be chronological account of changes in the operation; and special items of interest which are kept primarily for the information of the attendant. It often happens in investigating the failure of sewage disposal plants to operate that the deterioration of parts of the plant is found to be due to a method of operation that was in use for several months before its bad effects were apparent and brought to the attention of a consulting or advising engineer.

* Reprinted from the *American City*.

The diary record should be supplemented by weekly, and in some cases, monthly records relating to particular features of the sewage disposal plant and its operation. The items which it is suggested should be reported in this manner on tabulated forms are listed below :

1. QUANTITY OF SEWAGE :—These data should be obtained by some recording device or by taking readings two or three times a day on a weir at the inlet of the plant. This information is of fundamental importance as showing that the plant is or is not overloaded and working beyond its capacity. In many cases it has been found that the increase of flow of sewage is the primary reason for the failure of the sewage disposal plant to operate in a satisfactory manner.

2. SETTLING TANKS :—Records should be kept at periodic intervals as to the depth of sludge and scum at the outlet end of the tanks ; depth of scum in gas vents ; data and method of breaking up scum ; data and method of cleaning tanks ; quantity of sludge removed ; record as to the units that are in service each day ; the percentage removal of sediment as determined by Imhoff glasses or graduates, and a daily record as to the appearance of the raw sewage and the appearance of the effluent. From time to time the period of detention should be tested with dye in order to compare the theoretical storage period with that indicated by the use of dye.

3. CONTACT BEDS :—Records should be kept as to the failure of any of the dosing or emptying devices to operate satisfactorily. The condition and appearance of the effluent should be noted ; dose of organisms and other unusual conditions recorded. The time required for filling each contact should be noted about once a month ; the time of contact or standing full, and the time required for emptying each contact bed should also be recorded. Where double contact beds are provided, putrescibility samples might be collected and a record kept as to the results of the effluent from the secondary contact bed.

4. **SPRINKLING FILTERS:**—It is suggested that records be kept from time to time of the height and diameter of the spray at the nozzle farthest from the dosing chamber, the operation or length of time during which the spray continues to operate. Any trouble with nozzles should be recorded. The occurrence of any dead areas on the bed should be noted with information as to the measures taken for remedying this condition. The occurrence of any growths of algæ or organisms on or in the beds should be noted, with data and method used for remedying the same. The appearance of the effluent should be noted daily, and putrescibility samples should be collected and the results noted.

5. **SAND BEDS:**—Records should be kept as to the date of scraping or cleaning the beds, and the amount of sand or scum removed; a record as to the date when the beds are raked or hoed. The appearance of the effluent should be noted daily and putrescibility samples collected. From time to time information should be obtained as to the time required for the sewage to disappear from the surface of the beds after dosing.

To anyone familiar with sewage disposal works, many other items will occur in considering any particular works concerning which records should be kept. This matter has been presented in the above outline simply for the purpose of calling the attention of persons in charge of the operation of sewage disposal works to the importance and necessity of keeping sewage records not only for the information of engineers, but for the protection of the attendant himself.

Road Construction in Calcutta.

IN connection with the construction of roads by the Calcutta Improvement Trust, Mr. Maden, the Chief Engineer to the Trust, has submitted a report on the subject of road soling. The question for determination was whether to adopt single or double brick soling in all roads (where there will not be any appreciable heavy fast traffic) to be constructed by the Improvement Trust.

The practice in the Calcutta Corporation in regard to their roads was to use two layers of picked Jhama bricks (hand-burnt bricks of very uneven size and shape) laid dry by coolies. Mr. Maden in his report says that the result of his observations during the past few years has been, that he finds single brick soling fulfilling the conditions of a road foundation just as efficiently as double brick soling. It is a physical impossibility without the use of some kind of mortar to properly "bed" one layer of bricks on another layer when every brick is twisted (as is the case with picked Jhama), and the bricks only come in contact with each other at odd points, and such points of contact are few and far between. The consequence is that the second layer of bricks under the action of a rolling load is never at rest, gets broken, and as a result ceases to act as load distributors and by their movements under a rolling load cause internal wear and tear of the stone metal over them, and prevent proper consolidation of the road crust. Mr. Maden therefore recommended the omission of the second layer of brick soling as prejudicial to the making of a first class Macadamised road, and suggested that the Calcutta Corporation might be induced to adopt the same principle. The Corporation Chief Engineer, and the Chief Engineer to Government, P. W. D., Bengal, agreed generally with the conclusions arrived at by Mr. Maden whose specification for road construction, reproduced below, was approved by the General Committee of the Calcutta Corporation.

"That stone and brick metal roads should be constructed with a single brick soling laid in the usual manner, and 10" of consolidated stone or brick metal as the case might be, *i.e.*, 10" after consolidation. The stone or brick metal to be laid and consolidated in two layers of approximately 5" each." This specification only applies to construction of roads over which only slow or light traffic will pass. It is unsuited for heavy motor traffic for which a lime concrete foundation with an impervious surface would be required,

Concrete and Modern Concrete Construction.

CONCRETE consists generally of a mixture of broken stone, sand, and Portland cement. To these is added water, which in combining chemically with the cement causes the whole mixture to harden into a solid mass, forming a strong artificial stone. It has the immense advantage over natural stone that it can be easily molded while wet to any desired shape or size. Its ingredients can be obtained in almost any part of the world and its manufacture is extremely simple.

The last few years have brought a tremendous development in the use of concrete in building and for a great variety of other purposes. Among all classes of building materials, concrete can most truly be called "permanent," and at the same time it has the quality of progressive and accumulative strength. Under conditions of exposure concrete displays higher and higher powers of resistance, the action of the elements only adding hardness and strength as time goes on. No other material now used in construction can be said to meet so successfully the requirements of versatility in useful application, adaptability to varying structural conditions and combinations, simplicity combined with dignity and stability of appearance, harmonious adjustment to varying environment, cleanliness and hygienic value, and economy of cost.

We think of concrete as the most modern of building materials, yet it has been used since the dawn of civilization. It is known that the Egyptians over four thousand years ago made a natural cement which set under water.

The Romans used cements of good quality in the construction of highways, aqueducts, foundations, sewers, and to some extent in buildings.

The use of concrete was also known to the vanished races of the New World. In Mexico and Peru natural cement was used to withstand earthquakes and volcanic disturbances.

In one sense, therefore, concrete can hardly be called modern, it being a return to principles of construction which were well understood by the ancients. This ancient skill appears to have been a "lost art" all through the Middle Ages until the modern era of development was ushered in with the discovery of Portland cement. This now surpasses all other kinds of cement in structural importance and in extent of use. Portland cement was first produced in England by Joseph Aspdin, a brick mason, in 1824. He gave it the name "Portland" on account of its resemblance to the limestone quarried on the island of Portland, in the English Channel, from which St. Paul's Cathedral, the Eddystone Lighthouse, and other prominent structures in England were built.

A most important factor in the rapid expansion of the Portland cement industry in the United States was the application of concrete to steel structural work in fireproof building, and the subsequent development and widespread adoption of the reinforced concrete type of construction.

The introduction of reinforced concrete, steel concrete, or ferro concrete is generally attributed to Joseph Monier, a French gardener, who took out a patent in 1865. He applied his invention principally to the construction of troughs, pipes, reservoirs, etc., and probably had no conception of the marvellous development which his idea was to have. It was left to American inventors to work out the general principle of reinforcing concrete with iron rods to supply the necessary tensile strength in beams and slabs. The introduction of expanded metal and the mesh system of concrete reinforcement allowed architects to retain their steel structures and use concrete for the filling and arch work between beams in place of brick work and terra cotta. Thus we have arrived at the "age of cement," and Portland cement has become predominant in the field of general construction.

One of the great advantages in reinforced concrete construction lies in its fireproof qualities. There is an ever-

increasing demand for more adequate protection from fire, and building laws as well as the requirements of insurance companies have become more and more stringent. Reinforced concrete pillars or steel girders incased in concrete have largely supplanted wooden beams, and concrete is also widely used in conjunction with hollow tile, terra cotta, and fire-brick in fireproof construction.

It is significant that the most progressive manufacturers are employing reinforced concrete in the construction of their plants and factories. The manufacture of automobiles is generally regarded as one of our most progressive industries, and a very large percentage of modern automobile plants are of reinforced concrete construction.

This method of construction seems to be ideal where large floor area is desired without great height. The Bush Terminal buildings on the Brooklyn water-front are fine examples of reinforced concrete construction for warehouse purposes. Concrete is even being used for office buildings, although the development in this direction has not been so extensive.

The employment of concrete has now become so universal that only a few of its numerous uses can be touched upon in any brief review of this subject. Its earliest general use was in great engineering undertakings—bridges, sea walls, retaining walls, viaducts, and the like. An example of such construction is the New York City Aqueduct—the largest in the world. This great tube is 111 miles long, with a diameter up to 17 feet. More than four and a half million bags of cement were used in this huge engineering marvel.

The advantages of concrete have thus become universally recognised in an ever-increasing list of buildings and improvements, ranging from such small constructions as fence posts to the largest factories and warehouses.

Various forms of concrete construction for private residences are rapidly growing in popular favor.

The simplest and most inexpensive system consists of walls of concrete block with partitions, walls, and roof of metal lath plastered over, or of hollow cement tile or other fireproof material. Many handsome effects can be secured, and almost any type of architecture can be adapted to concrete design. Concrete houses are free from damage without and within, sanitary to the utmost, vermin-proof, rat-proof, cyclone-proof, and fireproof, and, in the long run, most economical.* Small concrete garages can be erected in an endless variety by using concrete in a number of different ways.

The concrete road is the natural evolution of the macadam road brought about by changing traffic conditions. The concrete road is clean and dustless; even but not slippery; unaffected by heat or cold, and practically wear-proof—the ideal road for automobile traffic.

Thus we are truly living in the “concrete age.” As the cost of all other building materials has gone up with leaps and bounds, concrete has rapidly grown in popular favor. Its source of supply is inexhaustible; its adaptability is almost infinite.*

Almora Water Supply and Drainage Schemes.

WE are obliged to the Secretary of the Municipal Board, Almora, for the following brief account of the drainage and water supply schemes recently sanctioned by the Sanitary Board.

In 1913, with a Government grant of Rs. 28,000, the drainage of Almora had some improvements carried out to it. These improvements did not, however, completely remove all the defects. The most serious of these were the absence of efficient flushing arrangements, and the location of the outfalls within the inhabited areas. On the attention of the Sanitary

* From the *Outlook*,

Board being drawn to these, the Sanitary Engineer and the Sanitary Commissioner suggested further additions and improvements which included the following works costing Rs. 52,000 :—

(1) A pipe line from the new sail village with flushing tanks, automatic syphons, &c., costing roughly	Rs. 26,000
(2) Intercepting sewer and outfall sewer with detritus pits, storm overflows, &c.	18,500
(3) Pail depots	1,000
(4) Sullage farm (land acquisition)	2,000
(5) Rubbish shoot	4,500
Total Rs.	52,000

In August 1916, detail plans and estimates were prepared for the following, for which administrative sanction has been received. The total cost amounts to Rs. 74,869, for which the Municipal Board has already received Rs. 25,000 and expect to receive a further grant, making the total half the whole cost of the proposed works.

(1) Cost of intercepting sewers and outfall sewer with detritus pits, &c.	Rs. 21,311
(2) Rubbish shoot	4,611
(3) Water supply, pipe line, &c.	36,114
Total Rs.	62,036
Percentage for contingencies on 62,036 at 10 %	6,203
	68,239
Sanitary Engineer's fees	3,230
Acquisition of land	3,400
Total Rs.	74,869

In the absence of details, we infer that the works proposed are (1) the laying of new intercepting and outfall sewers, with arrangements to catch silt, &c., (2) a rubbish shoot, i.e., a point on the sewerage where rubbish could be got rid of efficiently and cheaply, and (3) the extension of the water distribution system for flushing, &c.

Municipal Employees and the War Loan.

AT their meeting held on the 9th May, the Calcutta Corporation were asked to consider a scheme proposed by the Deputy Chairman for enabling Corporation employees to invest in the War Loan.

The Bank of Bengal's scheme was no doubt open to all, but it was considered desirable to see whether anything could be arranged which would permit of all the employees of the Corporation, whatever their pay, participating in the Loan.

The Alliance Bank was willing to advance the money for the employees at the rate at which they allowed the Corporation on short deposits (3 per cent. below Bank rate) on condition that the Corporation stood security for the amount and kept in deposit with them an amount equal to what was advanced for the purpose.

According to the Bank's proposals, employees of the Corporation would be able to invest on an initial payment of 2 per cent. of the amount they invested and 2 per cent. monthly, full payment being made at the end of four years (*i.e.*, 48 months \times 2 per cent. + 2 per cent. = 98 percent.) The interest earned by the investors in the first year would cover the remaining 2 per cent. The Corporation's only responsibility was in the matter of standing security, but as the Bonds would not be handed over until the payments were complete, that would amount to very little. The Acting Chairman carefully examined the proposal and was of opinion that the undertaking to retain roughly two lakhs in current deposit with the Alliance Bank would not embarrass the municipal finances.

The clerical, outdoor and subordinate staff were asked what they could do, and the amount which would be taken was about Rs. 1,75,000. Practically every one has offered to do something and we are informed that arrangements will be made to provide for even the menials.

After some discussion, the Corporation approved of the scheme as outlined above and resolved that a sum of Rs. 2 lakhs or thereabouts be kept in deposit by the Corporation at the Alliance Bank of Simla as a set-off against advances made to enable employees of the Corporation to make investments in the War Loan.

Bombay.

We reported in our last issue that the Bombay Corporation appointed a Special Committee for considering and reporting on the scheme suggested by the Municipal Commissioner for the establishment of a Provident Fund to enable municipal employees and servants to invest in the War Loan. The Committee, on a careful consideration of the scheme, reported that the establishment of the proposed Provident Fund would lead to complications. The Committee observed :

The primary object is to assist officers and servants to invest more largely than they otherwise could in the Indian War Loan. This object can be easily carried out if the course originally proposed by the Commissioner is adopted, *viz.*, that the Municipality should take up for the employees such notes or bonds as they desire to purchase and allow them to pay for the securities in instalments. The Standing Committee have already decided to invest Rs. 15 lakhs in the Loan, 3 lakhs of which were on account of the employees in anticipation of the probable amount required for them.

The Committee therefore recommended, with the concurrence of the Commissioner, that the Standing Committee be requested to arrange to sell securities of the value of about Rs. 3 lakhs to the Municipal employees who had expressed their desire to subscribe to the loan, the amounts due from each employee being recovered in instalments extending over not more than three years, the securities being retained by the Commissioner pending recovery of the instalments and interest being allowed on the actual instalments.

The Committee's recommendation has been approved and adopted by the Corporation.

Municipal Laws and Byelaws.

Street Cleanliness.

A BILL has been sent to the Legislature to amend the law forbidding rubbish or litter of any kind upon the streets in Boston. The Bill reads as follows :—

TO PREVENT THE PLACING OF RUBBISH, LITTER OR SIMILAR MATERIAL IN THE STREETS OF THE CITY OF BOSTON.

SECTION 1. No person shall place any waste, rubbish, litter or similar material in or upon any street, alley, passage way or private way in the City of Boston unless the same is in a covered receptacle.

SECTION 2. Whoever violates any provision of this Act shall be punished by a fine of not more than twenty dollars. Any person detected in the act of violating any provision of this Act may be arrested by any officer authorized to serve criminal process in the place where the offence is committed and kept in custody until he can be taken before a court which has jurisdiction of such offence, and if his name is unknown to the officer who makes the arrest, he may be arrested without a warrant.

Water supply for domestic purpose. (Cossipore-Chitpur Municipality.)

The following has been added to the Rules subject to which the Cossipore-Chitpur Municipality may allow communication pipes to be laid down from the service pipes of the Municipality for the purpose of leading water to premises for domestic purposes only :

No connection shall be permitted to any holding unless—

(a) effective provision has been made to the satisfaction of the Commissioners, for draining all waste water away by masonry drains leading to the public drains ;

(b) the platform on which the water tap is to be erected has been made pucca and has been properly plastered with cement or otherwise made impervious to percolation of water ; and

(c) the Commissioners are of opinion that such connection will not be injurious to the health of the locality.

Byelaws for the control of Lodging Houses in the Muttra Municipality.

1. No place in the Muttra municipality shall be used as a lodging house, unless it has been licensed as such by the chairman.

2. The keeper or manager of every lodging house shall apply in writing to the chairman of the board before the 1st April for a licence in the Form A* appended to these byelaws.

3. On receipt of such application the secretary shall cause the premises to be inspected by the health officer, who shall submit a report as to—

(a) the suitability or otherwise of the premises proposed to be used as lodging house;

(b) the number of persons for the reception of whom according to the scale of accommodation hereinafter laid down a licence may be given.

4. The minimum space for each person shall not be less than 7' x 5' x 10' (superficial area) *i.e.*, 350 cubic feet, two children under seven counting as one adult.

5. The health officer shall not certify that the premises are suitable for the reception of persons, unless they are in his opinion sufficiently ventilated and have sufficiently suitable privy and washing accommodation and arrangements for the disposal of all kinds of sewage and other refuse.

6. Each room shall be provided with iron barred apertures exclusive of the doorway of a total area not less than 1/10th of the floor area, and at least half of the total area should be unclosable.

7. If the premises are reported to be unsuitable or if the applicant has been sentenced by a criminal court to imprisonment for a term exceeding six months or to transportation or has been ordered to find security for good behaviour under the Code of Criminal Procedure, such sentence or order not having subsequently been reversed or remitted or the offender pardoned, the licence shall be refused; otherwise a licence shall be given for the year ending 31st March, for the accommodation of the number of occupants reported admissible by the health officer.

* The form has not been reproduced.

8. Before a licence is delivered to any applicant, he shall be required to pay a licence fee for the year calculated at the rate of eight annas for every person for whose accommodation authority is given by the licence: Provided that *dharamshalas* in which persons are granted free accommodation shall be exempted from the payment of any fee.

Provided also that the licence fee shall be doubled if the application for a licence is presented after the 1st April.

9. If a person to whom a licence under these byelaws has been granted dies within the period for which the licence has been granted, the representative in interest of the deceased or should there be more such representatives than one, then all or any of the number with the consent of the others, may apply to the chairman to have the licence transferred without charge. And the chairman shall cause such licence to be transferred by an endorsement on the face of the licence, unless for any of the reasons referred to in byelaw 7, he considers it inexpedient to do so or unless the applicant, being a minor, is unable to appoint a responsible agent. A licence transferred shall hold good for the unexpired portion of the year.

10. The licence shall be in Form B* appended to these byelaws and shall be subject to the following conditions, breach of which may entail forfeiture of the licence.

(a) The keeper or manager of a lodging house shall not at one time receive, or cause or suffer to be received, into such house a greater number of persons than shall be specified in his licence.

(b) The keeper or manager of the lodging house shall be bound to reside himself in the lodging house of which he is the keeper or keep a duly authorized agent resident therein.

(c) The keeper or manager as aforesaid shall be bound to cause the floor of every room of every part of the building, premises and enclosure to be thoroughly swept every day before 8 a.m. in summer and before 9 a.m. in winter.

(d) The keeper or manager as aforesaid shall be bound to cause all solid or liquid filth or refuse to be removed and every vessel, utensil or receptacle for such filth or refuse in every room or part of the building to be cleansed every day before 8 a.m. in summer and before 9 a.m. in winter.

* The form has not been reproduced.

(e) A ticket stating the number of persons for which each room or verandah is licensed shall be affixed on one of the verandah posts.

(f) Whenever any person in the building is ill or dies from any dangerous disease (dangerous disease means cholera, plague, small-pox, measles, chicken-pox or any other infectious or contagious disease) or has been removed therefrom in consequence of his suffering from such disease, the keeper or manager as aforesaid shall be bound to give immediate notice of the fact to the health officer or to such officer or servant of the board as may be appointed by the board for this purpose, and to comply with the orders and instructions of the health officer as to the prevention of the spread of the disease.

(g) The keeper or manager as aforesaid shall cleanse the rooms, passages, stairs, verandahs, drains, premises, and all parts of the building, the well, tanks or other sources belonging to the building from which water is obtained for the use of the persons using the building and the latrine, urinals and other means for disposing of sewage in or belonging to the building, premises and enclosure to the satisfaction of, and so often and at such times as may be required by, the health officer.

(h) The keeper or manager as aforesaid shall not keep any animal inside the licensed building.

(i) The keeper or manager as aforesaid shall at all times produce his licence when required to do so by the health officer, sanitary commissioner, chairman, any member of the board or any person authorized in writing by the board in this behalf.

(j) The keeper or manager as aforesaid must provide three latrines and one urinal seat for each hundred persons. No sandas will be allowed in lodging houses.

(k) The keeper or manager as aforesaid shall exhibit and keep exhibited on a conspicuous portion of the house the number of his licence and the number of persons for which the house is licensed plainly and legibly set forth in Urdu, Hindi and English.

He shall also maintain a register in Form B* appended to these byelaws and shall produce it on the demand of an inspecting officer, who shall record therein a brief note of each inspection.

* The form has not been reproduced.

11. When in the case of large fairs, the chairman is of opinion that the accommodation in licensed lodging houses admissible under the terms of the licences will be inadequate for the persons attending the fair, he may, on application from the keeper or manager, grant permission to receive such number of persons in excess of the number prescribed in the licence as he may think fit. Such permission shall be granted in the form of a temporary licence, to be known as an "excess licence" and the charge therefor shall be at the rate of eight annas for each extra person lodged in respect of whom permission is granted.

12. On a report made to the chairman by the health officer or the sanitary commissioner that owing to sanitary defects a licensed lodging house has become unfit for the accommodation of persons, the chairman may suspend the licence of the keeper or manager until such time as the health officer shall certify that the defects have been removed.

13. In the event of any keeper or manager of a lodging house licensed under these byelaws failing to comply with any provision thereof or of the licence, a notice may be issued by the chairman requiring such compliance.

14. When proceedings have been instituted on account of a breach of any of these byelaws against the keeper or manager of a licensed lodging house the chairman may suspend the licence held by the keeper or manager pending the result of the proceedings.

15. A licence may be revoked by the board—

(1) upon a second conviction of a keeper or manager for receiving more than the licensed number of persons ;

(2) upon a second report by the health officer that the keeper or manager allows or causes the premises to be in an insanitary state ;

(3) upon the keeper or manager being sentenced by a criminal court to imprisonment for a term exceeding six months or to transportation or being ordered to find security for good behaviour under the Code of Criminal Procedure when such sentence or order has not subsequently been reversed or remitted or the offender pardoned.

16. The number of persons entered in a licence may be reduced by the chairman on a report by the health officer that the available

space has been reduced or the sanitary condition of the premises has deteriorated. No refund of the licence fee paid in respect of the year shall be allowed for any reduction.

17. The number of persons entered in a licence may be increased by the chairman's order on an application by the keeper or manager in Form C⁺. The procedure laid down as preliminary to the grant of a licence shall be followed and the additional licence fee calculated per head on the additional number of persons sanctioned shall be paid before the amended licence is delivered to the keeper or manager.

18. The keeper or manager whose name is entered in the licence shall be held responsible for any act or omission contravening the provisions of the byelaws which may be committed by any servant or agent of his or any person placed by him in charge of the lodging house during his absence. He shall also be responsible that his servants or agents are properly informed of, and comply with, the sanitary arrangements of the house.

19. Licensees desiring to renew their licences for the ensuing year must apply to the chairman before the 1st April in Form D*. Every such application shall be reported on by the health officer. If the report is favourable the original licence shall be endorsed with the words "Renewed as No. . . . for 19 ". If the keeper desires that the licence for the ensuing year should be for a larger number of persons than the expiring licence, he shall present an application in Form C* along with that in Form D*.

20. An appeal shall lie to the board from any order passed under these byelaws within the period specified in section 61 (2) of the Municipal Act, 1916. The decision of the board shall be final.

UNDER SECTION 299 (1).

In exercise of the power conferred by section 299 (1) of the Municipalities Act, 1916, the board hereby directs that a breach of any of the provisions of these byelaws shall be punishable with fine which may extend to Rs. 100⁶, and in the event of a continuing breach, with a further fine which may extend to Rs. 5 for every day, after the date of the first conviction, during which the offender is proved to have persisted in the offence.

* The forms have not been reproduced.

Recent Publications.

MODERN UNDER PINNING. Development, Methods, and Typical Examples. By Lazarus White, C. E., and Edmund Astley Prentis, Jr., E. M. Illustrated. John Wiley & Sons. Price \$ 1.50 net.

SURFACE DRAINAGE. Being Practical Instructions to Engineers and Surveyors engaged in the preparation of schemes for municipalities. With tables of discharges and velocities for various forms of drains, &c. By H. A. Gubhay, Executive Engineer, P. W. D. Price Rs. 12-8.

ARITHMETIC FOR ENGINEERS. Including Simple Algebra, Mensuration, Logarithms, Graphs and the Slide Rule. By Charles B. Clapham. New York. E. P. Dutton & Co. Illustrated. Price \$ 3 net.

HOUSING PROBLEMS IN AMERICA. Proceedings of the Fifth National Conference on Housing. Price \$2.50.

THE TOWN PLAN AND THE HOUSE. An opportunity for National Economy. By F. Longstreth Thompson and Ernest G. Allen. Garden Cities and Town Planning Association. Price 1s. 6d. net.

DAIRY FARMING. By C. H. Eckles and G. F. Warren. Macmillan Company. Price 5s. net.



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The Massachusetts Homestead Commission.

The Housing Problem.

IN former issues of this Journal, we devoted considerable space to descriptions of the activities of the Massachusetts Homestead Commission and indicated the lessons they held for us in India. The present Report, dealing with the work of the body in the fourth year of its existence, is in many ways a document of unique interest, and a brief reference to it in these pages will prove useful at this juncture when a Town Planning Bill is about to be introduced in the Local Legislative Council.

As our readers are aware, the Commission, when it started on its fourth year, had already a large amount of substantial achievement to its credit. Two measures of vital importance recommended by it had been enacted into law by then—City Planning and authorising Cities to teach agriculture. The Report before us says:—

“In the three years that have elapsed since the recommendation of the Commission, the proposition that communities should grow by plan and not by chance has been pretty generally accepted; its progress in the public mind has been rapid.....There are now forty-nine local planning boards in the Commonwealth and the plans, studies and recommendations made by many of them show a public-spirited zeal and ability that will surely prove to be of great benefit to their communities.....Authority for school boards to teach agriculture was accepted by large majorities in each of the Cities of the State.”

The Commission, in its present Report, presents carefully drawn plans for 'definite, concrete, projects, in specified locations' with full details, for workers' homes. It emphasises that it does not propose that the Commonwealth should enter the real estate business for the supply of wholesome dwellings for the poorer classes. Its recommendation is that there should be an appropriation for a single experiment or demonstration to learn "whether it is financially possible to supply such homes for such workers, what are the principles or policies upon which such an undertaking should proceed, what are the dangers and what should be the limitations."

The Commission starts with the proposition that the "ideal homestead is the single family house, preferably detached, with a plot of ground." Tenement houses are out of the question: they involve a reproduction of existing conditions. "Semi-detached" or "double houses"—two houses joined by a vertical party wall, each complete in itself—are unobjectionable. Their advantage is economy in construction and in land. But where sufficient land is available, the Commission would prefer the detached house. It is also considered essential that land sufficient for a garden should go along with each house.

Assuming this to be a statement of the minimum requirements, the next question arises: is it financially possible to construct such dwellings and bring them within the means of low-paid workers?

The first necessity is suitable land. The cost of this must be kept down as much as possible. The high-priced, central portions of cities are thus ruled out. The choice therefore must be in undeveloped areas in towns, where these exist, or in suburbs outside towns. Such areas are taken and the cost of individual sites is worked out, to show that, in most places, it is still possible, in spite of the ruling high prices, to select large plots on which such experiments can be tried with the certainty of financial success. We have no doubt that this

applies to most of our large cities, including Madras. The provision of tramway and other facilities must, of course, go hand in hand with the organisation of such schemes.

The Commission then works out a series of designs for houses of various types suitable for the classes of society in view. Experiments undertaken already by private enterprise are described and detailed plans are given with accurate statements of cost.

As already stated, gardens are considered necessary and it is explained that the profits of gardening would alone justify their inclusion in the scheme. The following calculation will be read with interest:—

“In the division of an acre for the use of eight families, a lay-out of 40 feet frontage and 110 feet depth, or figures closely approximating these, would frequently be found. Such a lot lends itself to convenient sub-division as follows: set-back or front-yard 10 feet; house-space 40 feet, which would allow considerable room for outdoor work, play, clothes drying, flowers, etc.; 50 feet of the depth of the lot or 2,000 square feet rather less than $\frac{1}{10}$ th of an acre for garden; 10 feet for poultry yard. Probably no one with practical knowledge will deny that intensive, intelligent cultivation should produce an average of 25 dollars worth of vegetables per year from such a garden plot. Some experts will say more.”

This extract explains the great importance attached by the Commission to training in intensive agriculture, etc., being given systematically in all schools.

The Commission then adds up the cost of sites and buildings for workmen earning different rates of wages. The terms upon which homesteads should be allowed to be acquired are then discussed. As a general rule, no title-deeds should pass until at least 20 p. c. of the purchase price has been paid, provided that, in deserving cases where this amount may not be forthcoming at once, possession may be given on the strength of a smaller payment. On this basis, most workmen can, it is demonstrated, own their homes by payments spread over $16\frac{1}{2}$ to $27\frac{1}{2}$ years.

The problem then of providing wholesome dwellings for workmen on low wages is shown to be financially possible by careful, detailed plans with accurate statements of cost even in large cities where prices are high.

The Commission prefaces its studies with the remark that this has been the experience of all countries which have attacked the problem seriously.

“Up to the time of the present great War, every progressive country, without loss and without expense to the tax-payers, was doing something to promote the construction of dwellings for workers. Germany had built and financially aided in the building of many thousands of such dwellings. Since the war, England has enormously increased her expenditure for this purpose. New Zealand's activities, the most extensive of any, show a profit to the public treasury of nearly half a million dollars per year.”

What does all this teach us? The Housing problem has now reached an acute stage in our large cities and spasmodic efforts here and there will not help us to solve it. Speaking for the Madras city, the absence of a comprehensive policy on the part of the Corporation has led to speculation and land-jobbing on such a scale that the cost of building sites is fast getting beyond the means of the lower middle and middle classes of the population. If this process is to be arrested, immediate action—systematic and carefully conceived—is necessary. There must be a complete survey of the housing conditions of the city. It must be ascertained who are the men that stand in need of relief in this respect and what their economic condition is. Side by side with this, there must be a survey made of all undeveloped land within the city and of all suitable land in the suburbs and the Corporation or any authority the Government may establish for the purpose should acquire these areas, construct roads and drains and develop them, lay them out and make them available, at cost price, to *bona fide* applicants. Under such a system, there need be no burden on the general tax-payers on account of these operations, as each scheme can be worked out on a

remunerative basis. Action on these lines to be effective must be taken immediately and we trust that public opinion will be aroused to a sense of the urgency of the problem and press on the authorities concerned the need for initiating a large comprehensive housing policy in all our large cities.

Bungalow Architecture.

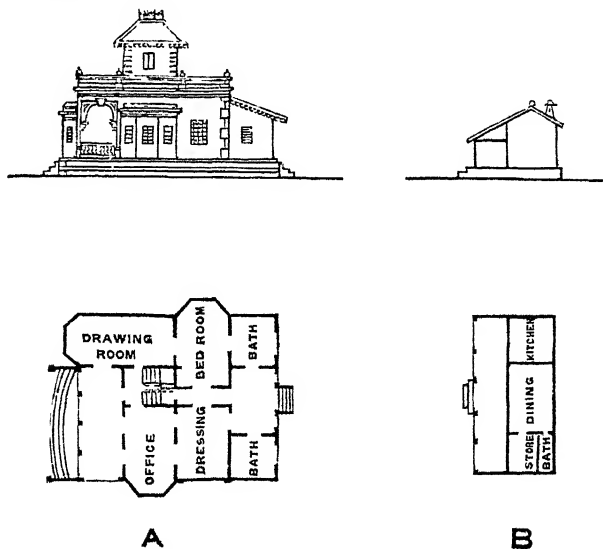
[BY C. RAJAGOPALACHAR, CHAIRMAN,
MUNICIPAL COUNCIL, SALEM.]

*"They left Cinderella nothing save her pots and pans,
her broom."*

IN former times, even men who could command more than average comfort and means lived in street-houses with their pials and neighbours, and their small windows and doors, with no chairs or tables or sofas or sideboards; and if there was any attempt at 'civilisation'—i.e., office-room life and drawing-room quiet—these were mixed up in too great proximity with kitchen smoke and dining-room cow-dung, and visitors and friends could hear and see the drawing of the water, the sweeping of the floor, the scrubbing of the pots, and the other toils of the women-folk, and the laughing and the crying and the undiscipline of the children—together unlike civilised Anglo-India. The striking feature of present day middle-class Indian life is the growing number of compound walls and detached bungalows, in the small towns as well as in the larger cities, with their pretty gables and red roofs, and glazed windows for light and air, showing off the central halls filled with chairs and sofas. Though as yet the men have failed to command the ordered life of the Anglo-Indian family, there being considerable difficulty in keeping the children from spoiling the furniture and disarranging things—for they do not seem yet to have understood the beauty of drawing-room arrangements—still with advancing education and 'civilization,' Neo-Indian fathers may be able in time to impress on these little folk and their mothers the superior comfort of quiet and undisturbed adult life in Anglo-

Indian bungalows, and may reach a closer approximation to it. Surely, there has been much progress and there is no room for complaint.

The change from Street to Compound Wall and Garden,—from dust and congestion to fresh air—is no doubt good progress. But there is one undesirable feature in this upward movement, on which point warning may be useful. In the old house, the kitchen, the dining room, and the other places where our women-folk toiled throughout the day and the waking part of the night were all integral parts of the house, and were well built—at least as well as the rest of the dwelling. Our women and with them our children are and will always be dwellers of the work-part of our homes, and the drawing-rooms and the office-rooms and their appointments are not for them. The plan and elevation of Neo-Indian Bungalows can be roughly shown as hereunder :



The illustrations show how even in improved and high class dwellings, women and children are badly housed by reason of want of co-ordination between national habits and architecture. They are mostly confined to the Kitchen Block (B), Block (A) being practically empty.

Block B is a line of small, economically planned, and more economically built rooms for kitchen, dining room, common bathing-room, prayer-room, stores, and all else that does not fit in with the high Europeanised life for which Block A is reserved entirely.

In the old *thotti* or quadrangular street-house, women and children enjoyed quite as much fresh air and light and ventilation, as husbands and brothers did; there was an equitable distribution of dwelling space among the men and the women and the children. The unfortunate imitation of Anglo-Indian architecture has led our South Indian man of means to push the kitchen out into a meanly built out-house. It is forgotten that in the one case, it is the pariah cook and his habits that are banished from sight and proximity; in this other, however, it is our own family—and the most valuable part of it. There, it is only the cooking that is done in the out-house; here, with the kitchen goes the dining room, the wife's visitors' room, the wife's dressing room, the prayer-room, the children's room—in fact, the kernel of the house is there in block B; and the main part of the building—Block A—is but a shell and a sham. The man has robbed his family of the housing equality once enjoyed by the latter and has banished them to the dismal out-house, reserving the main dwelling house all for show and imitation.

Anyone who watches life in the modern bungalow with an eye to the defect herein pointed out, may see the empty drawing rooms carefully preserved from family use and the other untenanted though spacious rooms of the so-called main building; and all the women and the children behind in the stunted block that is hidden away in the back of the house as an indecent thing, there making their own arrangements for life and growth as best as they can, round the kitchen, as of yore. Late at night they no doubt come and sleep in some part of the main block, but then the windows and doors are closed against the thief and the robber; and early in the morning, the unjust distribution of space is again enforced.

Thus, though housing has improved so far as the man and his furniture go, the larger and more important part of the family is in a worse position, proportionately, than before. Is the change, then, from the *thotti* or central quadrangle-house to the Bungalow and Kitchen-out-house, on the whole, a good bargain for our women-folk?

The fresh air and the garden house are good, but we ought to re-adjust the space more equitably between ourselves and our women-folk, allotting more light, more air, and altogether bestowing more care on the living rooms of wife and children, domestic servants and poor relations, than on the furniture show-rooms on the front side of the bungalow. Our kitchens have no doubt too much smoke; and our dining cannot be done far away; the nature of the food-stuffs and the dishes, and the manner of the eating and the cleaning necessitate an efficient drainage system. But surely modern science has enabled us to overcome these difficulties in house construction, and Neo-India can allot to wife and children and to their daily functions, their due space in the family house, adequate both in quantity and in quality. The one thing needful is to get over the hypnotism of imitation.

Co-operative House-Building in South India.

CO-OPERATION in the direction of house-building has so far achieved but little in the Madras Presidency, especially for the poorer classes. The history of Co-operative House-Building in South India is a history of exchange of views between the Board of Revenue—which until recently controlled the Department of Co-operation—and the Local Government, and after the lapse of more than two years the question as to whether and how far and in what form the Government should grant facilities for the formation of Co-operative Housing Societies is still in the stage of leisurely consideration.

Co-operation both rural and urban in this Province has so far almost solely been confined to credit.

In the rural parts, owing to the ryotwari system of land tenure, there is a large body of peasant proprietors settled on the land; the village with its cultivated-fields and its cluster of houses is still the home of a large part of the population of

the Presidency. It is true that to these, speaking generally, the problem of congestion and scarcity of house accommodation is not of any great or urgent importance. In the large towns, however, the population has been steadily increasing, and along with this increase, house-rent has been fast going up with the necessary result that, owing to overcrowding of houses, the death rate and the rate of infant mortality have also tended to increase. Conditions have arisen which drive the poorer classes to live in small ill-ventilated rooms of less than 10'x 10' paying a monthly rent of Rs. 1-8-0 to Rs. 2-4-0. These conditions are becoming common not only in the Presidency City but in almost every large town. The housing problem can therefore no longer be avoided—in the urban parts at least. It is therefore a matter for regret that the Government have not approached the question with any seriousness or promptitude.

When the co-operative movement was still in its infancy, Co-operative Societies enjoyed the benefit of State aid, but in 1907 Government decided that societies to be thereafter organised should be informed that the question whether they should be aided with any State advance would depend on the circumstances of each case and would be settled by the Government on the report of the Registrar of Co-operative Societies and of the Board of Revenue. The question of State aid to building societies was subsequently raised by the Registrar of Co-operative Societies, in the middle of 1914. In a communication addressed to the Board of Revenue, that Officer wrote:—

“I now come to the next important class of Societies which in my opinion call for Government help, *viz.*, Building Societies. I am convinced that the form of Co-operative Societies most urgently required after Credit Societies is the Building Society which the public, no less than municipal bodies, are clamouring for on every side. The public, however, do not seem to be aware that at the present ruling rates of interest in Co-operative Societies, namely 9½ per cent., a building society for the class of people by whom it is most urgently required—the class which now occupies congested areas in Madras and most other municipal towns—is out of the question. The cheapest building for an individual of this class, according to type designs furnished to me by the President, Madras Corporation, is one costing Rs. 500.

I am told that this estimate could with some difficulty be reduced to Rs. 450. Supposing the site is worth Rs. 50, an advance of Rs. 500 would have

to be furnished to such an individual in Madras, and in the mufassal the amount to be advanced would not fall short of Rs. 400. At 9½ per cent. interest, the borrower would have to pay, in Madras, Rs. 4 per mensem under interest alone for the first year, and he would have to pay something in addition every month in order to extinguish the debt in 15 to 20 years. The average income of an individual of this class, taking into account the earnings of his family, would not exceed Rs. 12 per mensem and I think a payment of even Rs. 4 per mensem would be impossible for him. At 6 per cent. interest, he could by paying Rs. 3 per mensem extinguish a debt of Rs. 400 in 20 years (*vide* statement below) and I would stipulate that he should find Rs. 100 from other sources. I therefore beg to recommend that Government provide Building Societies of this class with loans to be advanced to the societies at 4 or 5 per cent. and to members at 6 per cent. so that they may extinguish the debt in 20 years by payment of Rs. 3 per mensem in Madras and somewhat smaller instalments in the mufassal. I would fix each share in such Society at Rs. 50 to be paid up by monthly instalments and in addition each member would have to find Rs. 50 from other sources so as to make up an initial deposit of Rs. 100. As soon as this deposit is completely paid up, *i.e.*, about a year after joining the Society, the member would receive a house and site ready for immediate occupation, which house and site he would proceed to mortgage to the Society as security for payment of the balance of Rs. 400.

Statement above referred to.

[Original advance, Rs. 500 reduced by payments before occupation to Rs. 400.] [Calculation of yearly repayment; Instalment at Rs. 3 per mensem or Rs. 36 per annum.]

End of		Available for reduction of principal.		Outstanding principal.		Interest at 6
						per cent. thereon for next year.
		Rs.		Rs.		Rs.
1st Year.	..	12'00	..	388'00	..	23'2300
2nd "	..	12'72	..	375'28	..	22'5168
3rd "	..	13'48	..	361'80	..	21'7080
4th "	..	14'29	..	347'51	..	21'8500
5th "	..	15'15	..	332'36	..	19'9400
6th "	..	16'06	..	316'30	..	18'9780
7th "	..	17'02	..	299'28	..	17'9568
8th "	..	18'04	..	281'24	..	16'8744
9th "	..	19'13	..	262'11	..	15'7266
10th "	..	20'27	..	241'84	..	14'5104
11th "	..	21'49	..	220'35	..	13'2210
12th "	..	22'78	..	197'57	..	11'8542
13th "	..	24'15	..	173'42	..	10'4052
14th "	..	25'60	..	147'82	..	8'8692
15th "	..	27'13	..	120'69	..	7'2414
16th "	..	28'76	..	91'93	..	5'5158
17th "	..	30'48	..	61'45	..	3'0870
18th "	..	32'91	..	28'54	..	1'7124
19th "	..	34'29	which is more than the principal outstanding			

at the end of the 18th year. Therefore the debt will be extinguished in the 10th month of the 19th year from commencement of loan.

On the part of Government, it would be necessary according to my proposals to advance Rs. 50,000 for every 100 houses in Madras city and a somewhat less sum in the mufassal. The important bearing of the scheme on the question of relieving congested areas in towns will, I hope, commend it to the Board and the Government. Although I have based my estimate on the supposition that all the members would require houses of the lowest class, there would always be a certain proportion of members of a somewhat superior class—say clerks on Rs. 50 to Rs. 100 in public offices who would require houses costing from Rs. 1,000 to Rs. 1,500 each and to whom advances could be made on the condition that they paid not less than one-fifth of the value of the house as share and initial deposit. How much money would on the whole have to be advanced to Building Societies every year depends on the allotment which Government are prepared to make for the purpose. After the first few years, repayments by members would enable fresh societies to be started with less help from Government but I should say that there is room for spending not less than 8 lakhs of rupees within the next twelve months, should Government be pleased to make an allotment of that amount. I may add that in the case of such Societies repayments would begin at once, instead of after 2 or 3 years as in the case of Credit Societies."

The Registrar's proposals were also communicated to the Corporation of Madras, and at a general meeting of the Corporation held on the 18th August 1914, the Municipal Commissioners accepted a scheme for the formation of a Building Society for the benefit of the poor and they resolved "that the new sites in Royapettah to be acquired by the Corporation for the accommodation of the people evicted from Suparigunta *paracheri*, which are estimated to cost Rs. 125 a site, be made over by the Corporation to private individuals who are members of a Building Society at Rs. 50 per site, the total value of the sites being treated as a loan to the Building Society from the Corporation carrying 4 per cent. interest and to be redeemed by equal payments spreading over 10 to 15 years, and that the occupants of the houses in Suparigunta *paracheri* already acquired by the Corporation be left undisturbed for a period of about 6 months so that if they choose fresh houses can be built for them by a Building Society in the meanwhile."

It does not, however, appear that the acceptance of the Registrar's proposal by the Corporation led to any practical results.

The Government of Madras have not yet informed the public whether they have accepted the policy, recommended by the Registrar, of granting State aid to Building Societies

formed for improving the housing conditions of the working classes in the large towns of the province and, if they have accepted it, at what rate of interest they are prepared to give such pecuniary aid. Meanwhile, the Government of India have unfortunately expressed themselves as opposed to the policy of State aid and it will not be a surprise if the Local Government take their cue from the Imperial Government and refuse State aid to house building schemes altogether.

The question of State aid apart, various other causes have contributed to retard the progress of co-operative house-building in this Province. The rate of interest ruling in the open market is never less than 9 per cent. and in the case of the poorer classes it rules much higher. Even Banks which finance the co-operative movement never lend to Societies at a rate lower than $7\frac{1}{2}$ per cent. and individual members can never get loans from Societies at less than $9\frac{3}{8}$ per cent. As the Registrar has pointed out, it is impossible to form Building Societies with loan capital obtained from Central Urban and District Banks at $7\frac{1}{2}$ per cent. The 4 per cent. rate fixed by the Madras Corporation is very satisfactory but we cannot for a moment suppose that during the present world-struggle—when the Government is itself compelled to borrow at 5 and $5\frac{1}{2}$ per cent. and local bodies at higher rates, loans can be secured for building societies at anything like the 4 per cent. rate proposed by the Madras Corporation.

Secondly, the period of repayment usually fixed by the Co-operative Banks is very short and until it is extended to a period of 40 to 50 years, the poorer classes—with a monthly income of Rs. 12 to Rs. 15 per head—cannot avail themselves of the benefits of Building Societies. Twenty years is too insufficient a period. The repayments of principal will press heavily and if interest is high, the pressure will be all the more heavy. The only way to overcome the difficulty is to spread the repayment over a longer period, especially when interest is high. In Western countries, the period extends

to 50 years. There is no reason why the same period should not be adopted in this country. There is always the tangible security of the house and so long as the house is kept in good repair by the borrower during the period of his indebtedness, there is nothing to fear. A long period for repayment has this further recommendation, *viz.*, that the burden of the cost will be spread beyond the present generation, and it is only fair that it should be so, seeing that the borrower's heirs will benefit by the house to the same extent as the borrower himself.

Thirdly, Municipalities have not so far shown any disposition to encourage Co-operative House Building. During recent years, town extension schemes have been started in various towns, and there has thus been ample scope for the formation of Building Societies. The advantage to the municipalities in dealing with a corporate body like a building society are many, but no facilities—by way of fiscal or other concessions—have been granted. It is however refreshing to see that in a recent circular addressed to municipalities, the Government have drawn the attention of municipal councils to the organisation of Co-operative Housing Societies. They observe :

“It is desirable that efforts should be made to organise Co-operative Building Societies in connection with these extension schemes. Apart from the advantages these offer to members in enabling them to raise loans where necessary and to effect economies in the purchase of building materials and in actual construction, they are valuable to Councils as the managing members will assist in the enforcement of building regulations and also talk over such details as the allotment of individual sites to members, collection of the amounts due by them, &c. The advantages to municipal councils in dealing with the managing bodies of such societies instead of with a large number of individual owners, and in enlisting their support in enforcing building and sanitary regulations are obvious.”

It is to be hoped that this recommendation will have the effect of accentuating the desirability and importance of organising Co-operative Building Societies in the case of town extensions.

Fourthly, the advantages of the tenant co-partnership system have not yet been realized in this province. None of the existing Building Societies are based on this system, they being intended merely to finance individual members in the matter of securing or improving house accommodation. In towns where house-sites are dear and building operations costly, advances for house building should necessarily be large if they should at all be useful; and large advances cannot be made to individual members unless they can furnish substantial security and are able to make heavy equated re-payments in discharge of the loan and interest. Both these conditions are difficult of fulfilment in the case either of the poor working man or of the petty official or trader, whom such Societies are intended to benefit. On the other hand, a Society, as such, will be able, in consequence of the larger credit it can command, to raise capital on better and easier terms. There are several other advantages besides—which the success of the Bombay Sarasvat Housing Society points out—not the least important of which is that the Society can prevent not only deterioration in the value of the houses themselves but also that of the locality and the connected conveniences and social and health amenities.

Fifthly, the absence of voluntary effort is a great defect in this Presidency. An organisation like the Bombay Co-operative Housing Association will be a valuable agency in popularising the Co-operative Housing subject and in carrying on propaganda work without which much progress cannot be made in this field. A co-operator from Dindigul—a member of the Dindigul Co-operative Building Society—writes: “The chief reason for the paucity of work is the lack of knowledge on the part of the public in taking advantage of the Society. I suppose if we can get men to devote their time and attention to educating the public about the benefits, then some progress could be made.”

Sixthly, there is a common impression that the problem is not acute in this Presidency, and that therefore there is no need for special efforts to organise Co-operative Building Societies. This is a short-sighted policy, and is sure to result in much waste of money in future years. If the problem is not at present a pressing one, that is perhaps all the more reason why we should profit by the sad experience of other

countries where Cities wake up too late—when on account of the high rise in land value and other causes, the housing problem has become very difficult of solution. But it cannot reasonably be said that the problem is not an urgent one in Madras. Rents have nearly doubled themselves during the last 20 years and observation shows that this increase in rent is undoubtedly associated with overcrowding in houses with its attendant evils—an increased mortality rate especially among the infants and loss of vitality in adults. Everywhere there is a demand for increased civic comforts and as these can be commanded more easily in towns than in villages, there is a constant growth in population in our large towns. The desire for higher education which can be had only in towns and the gradual industrial awakening also tend to concentrate the population in municipal areas. The sooner, therefore, municipal councils and other non-official agencies realise the importance of organising Co-operative House-Building, the better for all concerned.

Finally, the sanitary and social aspects of the housing problem have not received the serious consideration they deserve. The comparative ease with which the common amenities of civic life—recreation grounds, bathing fountains, etc.—can be provided in a scheme of Co-operative House-building has not been appreciated. From the point of view of social reform, in its broadest sense, the housing question presents important features. It need hardly be mentioned that the character of the house determines the qualities of the race.

These are some of the reasons for the slow progress of co-operative building reform in this Province. In short, the Government as well as the public have yet to realise that it is by organising and fostering Building Societies that the Housing problem in our large cities will be eventually solved.

Now, as to the actual work done in the field of Co-operative House Building in this Province. So far, 8 Building Societies have been registered. Of these one—the Mambalam Co-operative Society—combines the functions of promoting building operations with the work of oil-seed pressing, and oil manufacture has been as yet the more important work done by the Society, the work turned out on the building side being almost negligible. The Madras Co-operative Building Society, though registered in September 1914, has not yet started work. The Coimbatore Co-operative Building Society and the

Kumbakonam Co-operative Building Society are practically the only Societies that have done any work worth mentioning, the former having advanced loans to the extent of Rs. 42,350 and the latter Rs. 11,270 from the time of starting. The Ootacamund Building Society has purchased a large plot of ground with the object of allotting portions of the same to the members. The Dindigul Co-operative Building Society has not been doing any work during the last two years. Its only achievement consists in the purchase of a vacant site in 1913 and distribution of same among some of its members.

It is observed that though the bye-laws of these Societies provide for building and owning houses on behalf of the Society, none of them has so far started work on the co-partnership system. The reason is probably the prevailing idea that the main function of Co-operative Building Societies is to lend money to members to buy or build houses in their individual capacity. The report for 1915 of the Coimbatore Society which has the largest amount of work to its credit, has done no more than lend money for the construction, purchase, or repair of houses or for redemption of old debts. The loans disbursed were all granted on the mortgage of immoveable property.* As regards the Kumbakonam Society, from information kindly furnished by the Secretary, it appears that ten new houses were built and occupied by members and four more are under construction. Besides these, small loans have been advanced to a few members for repairing their old houses. The new houses cost on an average Rs. 3,500 each, and the Society advances 50 per cent. of the cost and under. The capital is raised from the share money, recurring deposits from members and non-members and from loans from the Tanjore District Co-operative Central Bank at $7\frac{1}{2}$ per cent. interest. The Secretary further reports:—The people are anxious to utilise the Society to the best advantage but the financial conditions are rather poor and cannot meet the demands. So far, only the middle classes have been benefited and the operations of the Society are restricted on account of want of funds; and the Society's application for a State loan has not been granted.

* The successful working of this Society and the comparatively large volume of business transacted by it may be ascribed to the periodical visits of plague which, as in Mysore and Bangalore, necessitated the planning of a town extension scheme.

The following tabular statement gives particulars about the working of the Eight Societies so far organised in this Presidency:—

Serial No.	Number and name of Society.	District.	Date of Registration.	Number of Members on 30-6-16.	Share Capital paid up.	Working Capital 1916.	Gain or loss in 1915 and 1916.	Loans given to members in				Loans due by members at the end of 1915-16.	Reserve Fund. 1915-16.
								1913-14.	1914-15.	1915-16.	Total from the beginning.		
1	Mambalam Co-operative Society, No. 922.	Chingleput.	2-4-12	78	16,620	22,116	loss. —2,040	..	..	..	..	..	911
2	Uttiramerur Co-operative Building Society, 1616	do.	30-6-15	14	150	170	+6-2-1	..	..	300	300	150	
3	Coimbatore Co-operative Building Society, 1081.	Coimbatore.	4-6-13	178	6,120	30,952	+933	17,100	14,800	10,450	42,350	30,951	253
4	Madura Co-operative Building Society, 1092.	Madura.	12-8-13	22		253	—2		..	..			60
5	Dindigul Co-operative Building Society, 1145.	do.	31-8-13	42	720	772	+15	350	150	400	900	691	
6	Madras Building Co-operative Society, 1355	Madras.	2-9-14	..	Not started	Not started					Not started	Not started	
7	Ootacamund Co-operative Building Society, 1383.	Nilgiris.	3-10-14	59	5,995	5,995	—405	..	..	..	..	..	..
8	Kumbakonam Co-operative Building Society, 1432.	Tanjore.	8-2-15	60	2,105	7,737	+56	..	200	11,070	11,270	7,935	2

A perusal of the by-laws of these Societies—which are practically similar in all cases—shows that the Societies cannot extend their sphere of usefulness to the poorer classes. The rate of interest charged on the loans is high. Even 6 per cent. is too heavy for house building purposes. But, as has already been stated under present conditions, Building Societies cannot hope to get State loans at 4 per cent. and the outlook therefore is very discouraging—so far as State aid is concerned.

There is, however, one source which may be tapped for obtaining funds for Building Societies on easy terms. There are large temple and chatram funds which are now either uninvested or invested in Government Securities yielding $3\frac{1}{2}$ or 4 per cent. If only a small portion of these funds can be diverted to Building Societies, the financial problem of Co-operative House-Building is solved.

Financial Resources of Municipalities.

[By MR. S. BHIMASANKARA RAO, FORMERLY CHAIRMAN
AND NOW COUNCILLOR, RAJAHMUNDRY MUNICIPALITY.]

OF the various branches of Municipal Administration, no other subject possesses such a supreme importance in the growth and evolution of a Municipality than that of its own finances, its own resources and expenditure. Financial questions always present insuperable difficulties and upon their correct solution depend the progress and efficiency of all Municipal Administration. The successful management of finances in any Municipality indicates, in a fair way, the degree of progress which it has attained towards efficiency. Municipal bodies suffer from bad financial management, however best they strive to make both ends meet, and this is due to a variety of causes. Though these bodies possess some kind of financial freedom in respect of certain matters, yet they can hardly be said to have a free hand in financial questions and they cannot manipulate their resources to their best advantage. It is really a matter for congratulation that, within the limits imposed upon

them and notwithstanding the constant checks to which they are subjected, they are still progressing satisfactorily; with some more freedom from control their progress would have been still greater. The various outside contributions which are levied from out of the municipal resources form a serious drain upon the slender resources of the municipalities and prevent them from utilising the people's money to their best possible advantage. The Municipal Budget must pass through the Government anvil and they possess no power of transference from one major head to another without the previous sanction of the Government. It is not to be supposed that absolute freedom in all fiscal matters and liberation from all Government control is what is being advocated. Municipal bodies, as at present constituted, do require Government care and watchfulness for their progress, and especially when large sanitary grants are made by the Government towards their improvement, it is but necessary and proper that Government should retain some power to control and guide them along the right path.

2. During the last decade or so, owing to the facilities offered by the Railway in consequence of which there is a large expansion of trade, municipal towns are growing up by leaps and bounds. In consequence of facilities for easy and constant intercourse and cheap communications, there is discernible to an appreciable extent a constant stream of migration from the villages to the municipal towns, where people can command more comforts than they had in their own villages. The cry everywhere is that there is a dearth of house accommodation in many towns such as Rajahmundry, Cocanada and many others. Most of the municipal towns in the Circars are on the main line of the Railway and people find it more convenient to live in towns for a variety of purposes. The phenomenal rise in house rents in many municipal towns during the last decade strikingly illustrates the fact that municipal bodies have to tackle seriously the housing problem, which is coming to the forefront of all municipal matters and which requires strenuous endeavours on their part to combat with it so as

to prevent the outbreak of epidemics due to over-crowding. The needs of many of the municipal bodies are fast growing up by leaps and bounds. Roads and communications have to be extended largely and their maintenance is costing a good deal more than before. With town extensions, medical relief also has to be extended and branch dispensaries have to be opened. There are many other items on which municipal bodies have to spend a good lot from out of their current revenues owing to the growth of municipal towns. The ordinary revenues of a municipality are hardly sufficient to meet its growing demands and it is no wonder therefore that many local bodies are leading a hand to mouth existence, unable to deal with the many financial problems which cannot be solved without an augmentation of their current revenues. To quote one instance, the Rajahmundry Municipality started a sanitary scheme of opening up a highly congested area in the heart of the town where cholera was an annual visitant for some time back, prior to the introduction of the system of sanitary grants, and for that purpose borrowed a lakh of rupees from the Government. The scheme, which is known as the Vada Block Scheme has cost the Municipality a lakh and twenty-five thousand rupees up till now and the Municipality has to pay every year from out of its current revenues a sum of Rs. 8,000 till the debt is discharged. What a terrible financial drain upon the slender resources of the municipality to draw off Rs. 8,000 from its ordinary revenues every year ! It has actually crippled the resources of the Municipality and prevented it from doing many things for the improvement of the town. We had to curtail all our other expenditure in many directions for paying this annual instalment. The Vada Block Scheme is a very ill-starred scheme—started at a very inauspicious moment, and it is sitting like a heavy incubus on us. We do not know how to escape from it and our redemption lies in the hope that Government would come to our rescue and make a sanitary grant, thus relieving us from this white elephant of the Vada Block Scheme.

3. It has already been stated that to meet the growing needs of our municipal bodies, it is necessary that they should have an increase of their revenues. In every municipality, we ordinarily observe that many small improvements not costing much have to be put off for want of funds. It is difficult to improve the condition of our municipalities unless they are provided with sufficient revenues and their present revenues are hardly sufficient even to keep them going. We have to find out and devise some ways and means for augmenting the general municipal revenues either from additional taxation or from other sources. In many municipalities, the maximum rate of tax in respect of houses and water and drainage is being levied. To increase these further would be cruel and unjust and it is not possible for house owners to bear any additional burden as they have already reached the maximum point. With regard to taxes on arts and professions, it has been held that they should not be levied to their highest point as that would encroach upon the Imperial revenue of income-tax. It is impossible to raise these taxes any further without trenching upon the Government income-tax. So, there seems to be no hope in that quarter for increase of municipal revenue. With regard to tolls also, there does not seem to be much room for increase, and further the municipal bodies are compelled to surrender up a portion of their revenue from tolls to the Local Boards most unjustly. There does not seem to be a shadow of claim for thus depriving municipal bodies of a good slice of their revenue from tolls. If outside carts come and use municipal metal-roads constructed and maintained at a high cost, it stands to reason that they should levy some fee for such use. In the same manner Local Boards also are authorised by statute to levy tolls. In addition to that, Local Boards are given local cess levied in their limits upon all land owners. There is no reason why municipal bodies should contribute any portion of their tolls revenue to the local bodies, but on the other hand it is the latter that should contribute to the former as the use of municipal roads by outsiders would be very great when compared with that of those living

in municipal towns using Local Fund roads. All the municipal councils must make a strong representation to the Government about this unjust and inequitable contribution to the Local Funds from the municipal tolls revenue. It will therefore be seen that the municipal current revenues cannot admit of any further expansion in the shape of increased taxation upon houses, water and drainage, arts and professions and tolls. Middle class people form the bulk of population in municipal towns and already the incidence of municipal taxation is being felt as a heavy burden and it is difficult for them to bear any further encroachment upon their slender resources, which cannot but cause deep discontent in addition to its being oppressive. What, with the tax on houses, water, drainage and on professions in addition to the animal and vehicle tax, besides private scavenging fees; any more additional taxation for municipal purposes would be most unjust and inequitable. So we must leave off fresh taxation within municipal limits out of consideration in devising measures for improving the resources of municipalities.

4. In Northern India and Bombay Presidency, the system of octroi duties is prevalent, which is not in force in Southern municipalities. The octroi system was found to be oppressive and unworkable, besides being expensive to collect and it has also interfered with trade. The Government of India have therefore as an experimental measure sanctioned the substitution of direct taxation for octroi duties and the levy of a terminal tax or light transit duties in certain municipal areas in the United Provinces. It has also been suggested that the collection of the terminal tax may be entrusted to the Railway Companies to whom a liberal commission may be allowed. We have to ascertain whether the system devised in the United Provinces is working satisfactorily and yielding a good revenue, or whether it is felt by the people as oppressive and burdensome as the octroi. In all municipal towns, through which the Railway passes, a

terminal tax may be levied for municipal purposes entrusting the collection of the same to the Railway authorities on paying some commission to them. This seems to be an easy method of augmenting the revenues of small municipalities which lie on the railway line. The incidence of this terminal tax will not fall entirely on the municipal population alone but it will be distributed over a greater area and will be contributed by people from various parts and as it is a small one it will not be felt as a burden by the general public. The Government of India in their Local Self-Government Resolution of 1915 has approved of a light terminal tax subject to certain conditions and safeguards. If such a light terminal tax is imposed, many small municipalities will have plenty of scope for effecting several improvements. There should not be much opposition and objection to the imposition of the light terminal tax and it is hoped that this suggestion may receive a favourable consideration at the hands of the Government in the interests of small municipalities.

5. The second source of increase of municipal finances is the assignment of the abkari revenue within the municipal limits to the municipalities. This might involve a loss to the Government of their present Abkari revenue in municipal limits but the Government has really to make some sacrifice in this direction. Properly speaking, the municipalities are entitled to claim this revenue, because all liquor consumed within the municipal limits is liable to be charged to the benefit of the municipality in the same way as tolls revenue or any other municipal tax is levied for the upkeep of the municipal institutions. There is no reason why the Government should appropriate to themselves the abkari revenue within the municipal limits. The assignment of the abkari revenue to municipalities would place them in a better financial position and would enable them to improve their conditions to a very great extent. If the Government wills it, it can be done easily. The Government have to be brought round and for this purpose strong and united

representations by all the municipalities should be made on the matter. There should be persistent agitation by the municipal councils in this matter and there is no doubt that the Government would yield in sympathetic response to the just demands of the municipalities.

6. A third source of the augmentation of municipal revenue is the imposition of a pilgrim tax on occasions of festivals. Large crowds frequent these municipalities on occasions of festivals and the municipalities have to incur additional expenditure for making sanitary and other arrangements. The imposition of a small tax will not be felt as burdensome by the pilgrim population and they will cheerfully pay and this would certainly enable the municipalities to make adequate arrangements for the convenience and comfort of the pilgrims. The Government have been liberal enough in contributing large sums of money to those municipalities where large festivals are held. The imposition of a small pilgrim tax will relieve the Government from the necessity of making such a contribution while enabling the municipalities to do their duty on such occasions more efficiently. There should not be any serious objection for its imposition and adequate safeguards and conditions may be laid down by Government so that it may not be felt burdensome by the public.

7. A fourth source of revenue is giving over of the cattle-pound fees to the municipalities. There is no reason why the revenue department should appropriate the same. Small as the revenue is, the Government may well assign them to the municipal funds.

8. The above are some of the suggestions for the increase of municipal revenues, without which the municipalities cannot develop themselves. In addition to these there are certain contributions from municipal funds, which the municipalities should be relieved from. Reference has already been made to the inequitable contribution of one-fifth of the tolls.

revenue to the local bodies. Besides this there are other small contributions to various other institutions, which the municipal councils are called upon to make. Though they may be just contributions the present financial position of many small municipalities would not permit them to make them, however small the amount may be, for keeping up other institutions elsewhere. The Imperial revenues must keep them up—not contributions from struggling municipalities.

9. Though the Decentralization Commission has recommended larger financial powers and a great freedom from official control, the Government of India in their Local Self-Government Resolution of 1915 have not been pleased to accept their recommendations *in toto*, but accepted it as a policy to be kept in view and gradually realised. A municipality must be free to frame its own budget and Government may have the power of supervision but not of minute control. In the case of indebted municipalities, they may have stricter powers of supervision. But ordinarily unless a municipality has full power to adjust its own income and expenditure according to its needs, it cannot attain to any degree of financial responsibility and it is on this ground that the Commission has recommended wider powers. As matters stand, the municipalities cannot be taken to task for their bad finances and they can very easily say that so long as their budgets are framed by Government, they are not responsible for their bad financial position. The complaint is against minute control in all details, which is not conducive to the progress of the municipality. The principle of relaxation of too much official control is admitted, and certain safeguards, such as maintaining closing and opening minimum balances, provision for discharge of loans, etc., have been devised. We hope that this principle of relaxation will be observed in practice and municipalities will be more free from strict official control with regard to their finances and other matters. We do recognise and appreciate the manifold benefits conferred on the municipalities by the Government in the shape of grants

or otherwise and we are deeply thankful to the Government for the same. What we urge respectfully upon the attention of the Government is that with their present slender resources of the municipalities, their progress cannot be commensurate with the times and they cannot fully discharge their present obligations except with increased finances and augmented resources.

10. We hope that the Government will be pleased to give their favourable consideration to the suggestions put forward above for increasing municipal revenues thus enabling municipalities to discharge their functions more adequately and with greater efficiency.

The Mysore Local Boards and the Village Panchayets Bill.

WE have received a copy of the Mysore Local Boards and the Village Panchayets Bill. The Indian States usually follow British Indian Legislation and the present Bill, which appears to be a consolidating measure seeks to introduce some improvements. An elected majority is provided in all District Boards and Taluk Boards (cl. 4) and the Presidents of all Taluq Boards are also to be elected (cl. 17). An important feature of the Bill is the provision relating to the constitution of village panchayets (ch. VI). The present system of Union administration is to be abolished and power is taken to constitute village panchayets. The functions of these bodies under the Bill are fairly comprehensive (cl. 49) ; the provisions relating to the constitution of the village fund (cl. 51) and the power proposed to be given to the Panchayets to levy a cess (cl. 52) on the consent of three-fourths of the members of the panchayets, are other features of the Bill.

It is, however, doubtful whether the provision that budgets of village panchayets should be scrutinised and passed by the Taluq Boards (cl. 54 (2)) is a wise one. A provision such

as this will take away the sense of responsibility of the panchayets which ought to be freed as much as possible from interference from above. Another provision which may be referred to in this connection is clause 57 of the Bill which empowers a village panchayet constituted under the Bill to be entrusted with the powers of a Village Court, a Tank Panchayet, and a Village Forest Panchayet.

We shall watch the further progress of the Bill with interest.

Provincialisation of Trunk Roads and the Improvement of Village Communications.

[By Mr. T. K. T. VEERARAGHAVACHARI, B.A., A.C.E.,
DISTRICT BOARD ENGINEER, KISTNA.]

LOCAL Fund roads are now grouped under three heads :
 (1) District Board roads.
 (2) Taluk Board roads and Union roads.
 (3) Village roads.

The above is the classification adopted in statement XVI accompanying the annual report on the working of the Local Boards and Union Panchayats in this Presidency issued by the Government in the Local and Municipal Department. If we wish to know how this classification came into existence, we have only to refer to sections 49, 50, 52 and 139 of the Local Fund Code. I shall reproduce them verbatim.

“ Section 49. All public roads in any district and the pavements, stones, and other materials thereof, and also all erections, materials, implements, and other things provided for such roads shall vest in the District Board. But it shall be competent to the Governor in Council by notification to exclude any road from the operation of this Act, and to modify or cancel such notification.

* A paper read at the Madras Local and Municipal Conference (1917).

Section 50 (1) All sewers, drains, drainage works, tunnels and culverts in, alongside or under the public roads, in any district, whether made at the cost of the District Board or otherwise, and all works, materials, and things appertaining thereto shall vest in the District Board.

(2) All rubbish, sewage, filth, and other matters collected under this Act shall vest in the Local Board or panchayat at whose cost they are collected.

(3) But it shall be competent to the Governor in Council to exclude from time to time by notification any sewer, drain, drainage work, tunnel or culvert from the operation of this Act, and to cancel such notification wholly or in part.

Section 52 (1) The District Board may, with the approval of the Governor in Council, or shall
 Taluk Board road. upon his direction from time to time, by notification, declare that any immoveable property vested in such District Board shall vest in any Taluk Board in the same district.

(2) Such property shall, from the date specified in the said notification, vest in such Taluk Board, and thereupon all powers and duties which attach to the District Board in respect of such property shall attach to such Taluk Board.

Section 139. Property under the control of the panchayat to enable the panchayat to carry out the
 Union roads. purposes of this Act, all public roads, drains, tanks, wells and other public places in the Union, unless specially excepted by the Taluk Board, shall be under the control and direction of the panchayat, and the Taluk Board may place under the control and direction of the panchayat any other property or any institution which is under the control of such Taluk Board."

It will be seen from the above that all roads and all structures, &c., thereon primarily vest in the District Board and that Taluk Board roads are only such as are made over to

them by the District Board. In like manner the Taluk Board makes over to the Union Panchayats certain roads. Neither the Taluk Board nor the Union panchayat can therefore have any property independently of the District Board and the consequence has been that roads have been not unfrequently changing hands.

The term village roads has no standing according to the Act, but seems to have come into existence to denote a road from a village to a main road. Generally, a bad and short length of Taluk Board road is classified as a village road.

No village roads in the Act.

2. This classification into District, Taluk, and Village roads does not take into consideration the requirements of traffic or administration nor the development of the economic resources of the country. It gives no idea as to whether the road is metalled, gravelled or only earthen. More often it is the financial position of the Boards that determines what should be District and what Taluk Board roads.

It will on all hands be conceded that roads play an important part in civilising and improving the material prosperity of a country by affording facilities for communication. It is therefore essential that each province should have a system of roads untrammelled by parochial interests, forming the main arteries of communication, linking together the important centres of trade and industries and markets of agricultural produce and coming into frequent contact with railway lines. The roads in this Presidency are unfortunately not the outcome of such considerations. There were the old military high roads which were once kept in good condition and fit for military transport. These fully satisfied the requirements of those days, for civil, military and trade purposes. With the advent of the railway and in its earlier days, it was presumed that roads were no longer of great importance and that roads running parallel to a railway line may safely be abandoned. It was thought that the railways will completely supplant the roads. Whatever may be the

advantage of a railway line, its rolling stock must necessarily be limited, its working hours fixed, and its accidents and failures factors to be taken into consideration. To those engaged in business, time is an essential consideration and modern vehicles of transport have made it possible to realise that within certain limits a good road is more advantageous than a railway.

3. In the map of the Madras Presidency accompanying this paper I have, to illustrate what I mean, suggested certain roads to form roughly a girdle all round the Presidency. There are gaps in this girdle which should of course be made up to form a continuous length of road. Such a system of roads is of primary importance and may be styled 'Provincial Roads.' The correct determination of this girdle should be settled in consultation with the various trading and manufacturing bodies, the railway, the military and the administrative authorities. The standard of its maintenance should be fixed by the Government. It should be fit for military transport and heavy motor traffic. Its maintenance may safely be in the hands of the District Boards, the Provincial Government providing the funds.

4. Next in order, I would mention the District Board roads. Under this head, I would include all roads which link together the various taluk head-quarters and the district head-quarters and which afford administrative and trade facilities. Every one is anxious that the District Officer and the various trading and banking agencies should come into closer and more direct touch with the ryot and the producer. In the absence of roads which will render this possible without waste of time this wish cannot be realised. The advantages which the district will derive by the frequent contact of the ryot with the administrator are manifold and will more than counterbalance the expense involved in making it possible. The existing roads in every district with a few links inserted

here and there could easily be converted into an effective belt of roads. To illustrate this I have taken the roads in the Kistna District and have shown in the accompanying map the links which would afford facilities for trade and improve administration, particularly Revenue and Police. A well considered system of roads forming a complete circuit round the District with cross or tie roads forming short circuits and linking together all the Taluk head-quarters, important railway stations, markets of agricultural produce and manufacturing centres, I would classify as District roads.

All these roads should have metalled surface fit for ordinary traffic including the light motor busses which are fast coming into use in various parts of the Presidency. Where the soil is hard or gravelly it may even be a gravelled road. But it is essential that it should be completely bridged and provided with open or perforated dams where such will suffice. They should be maintained by the District Boards out of District funds.

5. The third class of roads are the Taluk Board roads which serve to connect the major villages and Unions affording facilities for the transport of agricultural produce at almost all seasons of the year to the chief markets, canal, wharfs, or to the railway stations. They may be metalled where materials are cheap, or left sanded; but invariably provided with culverts, bridges or road dams across troublesome and wide water courses. It will be sufficient if these roads are designed to carry two lines of cart traffic. They generally serve to convey agricultural produce from one place to another within an average distance of 20 miles on double bullock carts or are used by people resorting to Taluk Kutcheries, District Munsifs' or Sub-Magistrates' Courts, on jutkas, bicycles, motor bicycles or other spring vehicles. The ruling load of two lines of double bullock carts will answer all purposes on such roads. The Taluk Boards will maintain all these roads.

6. Lastly come the village roads. The Local Boards Act makes no mention of these. Every village has its own puntas or donkas used as thoroughfares. But these are not all village roads, nor are all of them Local Fund property. The villagers are under the impression that the Local Boards have done nothing to them since their donkas are left in a woeful condition in spite of the enormous amount of land-cess that is being collected from them year after year. The idea of every village being provided with roads is of recent growth, although the Revenue Department have been spending small sums here and there for improvement of village sites. It is now time that the village road is defined and given a status; more than this, ways and means should be devised for providing funds and for creating an agency to construct these roads.

All our villages are labouring under great disadvantages. They are in several cases cut off from outside communication for a considerable portion of the year; their streets are insanitary, and their sources of good drinking water few; they realise that they pay the greatest portion of the taxes and derive the least benefit. Unfortunately the financial position of the Boards is not such as to permit of any large expenditure on village roads. In the years 1914-15 there were 5,777 miles of village roads against 22,218 miles of District and Taluk Board roads. Of these, 4,115 miles were repaired at a cost of Rs. 4,34,475. Also 293 miles of new village roads were constructed at a cost of Rs. 1,47,541. Thus the total expenditure on village roads in 1914-15 was Rs. 5,82,016 against Rs. 45,88,773 on the repairs and construction of District and Taluk Board roads, or in the ratio of 1 : 8 nearly. The Boards cannot possibly devote more funds for village roads except at the sacrifice of District and Taluk roads. But the Government have been year after year insisting on the Boards spending more on village roads. What have the Boards actually done? I shall take the years 1904-05 and 1914-15 for comparison.

	Village Roads.	Taluk Roads.	District Roads.	Total.
1904-05	6,520 miles.	11,345 miles	9,609 miles.	27,474 miles.
1914-15	5,777 ,,	9,376 ,,	12,461 ,,	27,614 ,,

The increase in mileage of all roads taken together is only 140 in ten years. Village roads have decreased from 6,520 to 5,777. Taluk roads have decreased from 11,345 to 9,376 and District roads have increased from 9,609 to 12,461. It will thus be seen that we have not been any the forwarder in constructing new roads in spite of the fact that expenditure on communications rose from 39.15 lakhs in 1904-05 to 72.69 lakhs in 1914-15. We have only been improving the condition of existing roads and the District Boards have been taking on themselves greater responsibilities to relieve the Taluk Boards of their financial strain. Roads have been shuffled from head to head only for want of funds. We find that nearly six lakhs have been spent on so-called village roads. Even if sixty lakhs are spent, it will not adequately satisfy the requirements of our villages. Neither is it sound policy to lower the standard of maintenance of the Taluk roads. Other means have therefore to be devised for making village roads. Under sections 58 and 59 of the Local Boards Act, the District Board or the Governor-in-Council have the power to levy the taxes and tolls mentioned in section 57 in any District, Taluk or Union area. Here the unit is either the District, the Taluk, or the Union; but not the village. If the village also is recognised as a unit it would be possible for many villages to improve their roads and sanitation. With the District or the Taluk as the unit the taxes become district funds under section 54 (1) and moiety of this is transferred to the Taluk Board as provided in section 55. The Taluk Boards may spend this moiety in any manner they please. It is this state of affairs that has kept the villages opposed to any further taxation than what is provided under section 57 (1) of the Act. Under the same Taluk Board there are villages very differently situated. What with wet cultivation, liability to inundation, the deep black clayey nature of the soil and the heavy cost of materials to be conveyed from long distances, roads in one village become more expensive than in

another more favourably situated in these respects. This often leads to some villages being entirely neglected. If each village or a group of villages similarly conditioned is empowered to raise taxes for local needs subjects to such limits as their general prosperity and their requirements may warrant, it would be easy to effect improvements in all directions—communications, sanitation, education, &c. It need only be an enabling provision but encouraged by Provincial or District Board subsidies. It should be left entirely to the villagers to decide how much within the maximum limit they should tax themselves and for what legitimate purposes the funds may be applied. Elected Village Improvement Boards may be created having control over their funds and the expenditure audited by a village auditor to be appointed or deputed by the Government. The L. F. Engineering staff will frame the estimates for its public works whenever required and will exercise an advisory control over the execution of works. The fundamental principle is that each village should be left free to decide on and execute its works and raise the funds it needs. When a new road has to be laid the District Board Engineer or the Assistant Engineer may be asked to align the line and prepare estimates for the road and all culverts thereon. The village will select its own contractor or can carry on the work departmentally. The L. F. Overseer will assist in marking out and measuring the work. I feel confident that the system will be elastic enough to suit all villages, rich and poor. It will create some rivalry amongst villagers and will, in spite of some initial difficulties and failures, eventually prove beneficial.

7. My proposals, therefore, are :—

(i) to create or transform a continuous length of road running right round the Presidency into what may be called provincial roads. This will, as shown roughly on the annexed map, be 3,600 miles in length. Its average annual cost of maintenance at about Rs. 700 per mile will amount to Rs. 25,20,000 in all.

In the year 1914-15, the contributions to District Boards from Provincial Funds, excluding the special assignment

made by the Government of India, for the renewals of roads and bridges was Rs. 8 lakhs. It is therefore not an impracticable proposal to define certain roads as provincial to be maintained from provincial funds. The Local Fund Engineering staff under the District Boards are quite competent to create and maintain first class roads provided the necessary funds are given. There need be no separate agency created for the maintenance of these roads.

The L. F. agency is, however, a bit too antiquated. Each Board need no longer allow its engineering staff to vegetate in one district a whole lifetime. The advantages of infusing periodically fresh blood into the establishment by transferring employees from one district to another are several. Officers will have varied experience, the morale of the establishment will be higher, the prejudices of one officer cannot ruin a subordinate and corruption will be reduced. The Local Board Engineering Establishment of all the Districts should be on one cadre.

I would here emphasize the need for one or two Government Inspectors of roads having the necessary technical qualifications and experience, who will be working under the Secretary to Government, Public Works Department—Roads and Buildings. The supervision exercised by the Chief Engineer for roads and buildings over the District Board roads is more nominal now. The Inspectors will make supervision a reality and will see that the different Boards do really maintain the Provincial roads in an efficient condition. He will be in a position to advise the Boards in the matter of inter-district communication which is now in a very unsatisfactory state. His will be a central office wherein the experience of the various districts are gathered together and presented in a well connected and useful form. We have now no comprehensive idea of the roads in this Presidency, each District Board Engineer working in a watertight compartment of his own, very often not aware of the existence of better material and cheaper labour in the adjoining district,

and not acquainted with the success and failures of his brother engineers. Two District Boards rarely consult each other and make their roads continuous. The report on the working of Local Boards and Union Panchayats in the Presidency issued annually by the Government does not throw much light on these questions. Information as to whether there is through communication by road from one District to another, what are the unbridged rivers on the roads or what bridges have been newly constructed, or what roads newly made, may be usefully compiled and furnished in the annual Review. Each District Board and the Local and Municipal Department may well publish a guide book and keep it up to date by periodical revision. An Inspector of roads will be able to effect several improvements in the road Administration of the Presidency and bring about co-ordination of work amongst the District Boards. Seeing that we spent in 1914-15 Rs. 10·87 lakhs on Local Fund Engineering Establishment and about 72 lakhs on communications alone, the proposed reorganization is quite warranted, and may cost Rs. 20,000 more under establishment.

(ii) to define what are to be District Board Roads.

There has been a great tendency to shove on to District Boards whatever Taluk Boards have not been able to maintain. Also, roads have been constructed without consideration of the financial condition of the Boards to maintain them. The result has been that we have several roads in disrepair. Statement XVI of the Report on the working of the Local Boards and Union Panchayats for 1914-15 gives the average cost of maintenance per mile of District Board roads as Rs. 277. It varies from Rs. 578 in South Arcot to Rs. 52 in Koraput. These figures are very misleading. If District Board roads are to be efficiently maintained, the average cost of maintenance will be nearer Rs. 400 than Rs. 300. In several districts, practically the entire length is stated to have been under maintenance which is not possible as they could not have had sufficient grants. The statement does not give

the number of miles actually renewed and the number over which petty repairs have been done.

We should find out for each district how many miles of road the District Board can maintain from the funds available. This can be found by taking the average cost of renewing each mile. We then know how many miles can be renewed each year for the money that can be allotted for road renewals. This multiplied by the average life of the metal will give the maximum number of miles the District Board can maintain. Unless more funds can be raised there must be a stop to further road programmes. It is far better to have a few satisfactory roads than double the length of unsatisfactory ones. Local Boards have to realise that a forward policy is impossible unless they can devise means for improving their financial resources. Provincialising some roads will leave more money in the hands of District Boards.

The above remarks apply to Taluk Boards roads also.

(iii) to enable villagers to levy tax for village improvements and to allow them an effective control over the funds so realised. The agency to expend the money so raised will be the villagers themselves. The Local Fund Engineering staff may be strengthened so as to cope with additional work of preparing estimates and giving professional advice to the villagers.

The construction of village roads is a pressing need particularly in the delta districts and no agency will be so satisfactory in doing this as the villagers themselves. Neither the District Board nor the Taluk Board can satisfactorily undertake the work. I feel confident that in the delta the Village Improvement Board will prove a success. In the Kistna District villages come forward with half contributions for the construction of roads, bridges and culverts. It is only a few public spirited among them that collect the money. Sometimes a rich but refractory individual refuses or evades the payment. Legislation can certainly help to foster this spirit.

The contributions made are not small in amount. One village paid nearly Rs. 10,000 for a bridge and instances are common where the people contribute two or three thousand.

For a forward policy on the one hand the Government should bear the cost of maintenance of the trunk roads (provincial roads) and on the other the villagers should find their own funds for the construction and upkeep of village roads and for the improvement of village sanitation. The Government should encourage this policy by subventions.

The District and Taluk Boards will then have sufficient funds to develop a rational system of roads and maintain them in good condition.

Expenditure by District Boards on Communications.

The following statement shows the expenditure by the District Boards, during 1915-16, on communications:—

Serial number.	District	New roads			Road repairs.		
		Village.	Taluk.	District.	Village.	Taluk.	District.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	Anantapur ..	..	..	..	6,782	15,027	27,539
2	Arcot, North..	6,855	..	..	44,650	50,304	95,492
3	Arcot, South..	7,287	..	1,697	19,427	47,472	2,32,291
4	Bellary ..	..	..	..	4,586	31,535	74,716
5	Kanara, South	41,999	..	2,913	14,026	22,69	59,025
6	Chingleput ..	740	7,068	..	19,139	40,625	1,72,320
7	Chittoor ..	1,905	..	..	2,783	34,906	65,138
8	Coimbatore ..	..	..	..	39,181	45,649	2,08,293
9	Cuddapah ..	487	..	..	4,930	20,362	54,692
10	Ganjam ..	1,217	490	6,116	4,763	41,923	1,53,341
11	Godavari ..	2,225	2,790	11,377	13,794	54,013	1,70,058
12	Guntur ..	8,244	31,809	40,915	9,918	44,501	1,73,973
13	Kistna ..	9,236	..	2,760	24,759	88,093	2,92,120
14	Koraput ..	..	..	..	1,522	..	27,276
15	Kurnool ..	..	2,038	1,926	2,190	31,878	85,824
16	Madura ..	15,304	..	..	43,033	57,919	1,52,174
17	Malabar ..	8,246	..	..	18,452	76,632	2,44,891
18	Nellore ..	9,806	1,191	..	12,530	4,257	75,978
19	Nilgiris, the ..	..	..	..	4,682	..	81,422
20	Ramnad ..	..	823	9,012	13,451	1,02,399	64,326
21	Salem ..	..	48	929	15,886	31,181	1,17,750
22	Tanjore ..	12,432	..	..	50,567	74,337	2,06,961
23	Tinnevely ..	2,304	..	..	36,274	71,999	1,83,691
24	Trichinopoly.	7,793	..	413	28,294	18,933	1,62,932
25	Vizagapatam.	6,062	6,072	68,557	16,145	52,734	1,27,125

Personal Hygiene.

[BY DR. M. R. SAMEY, M.D., D.P.H. (U.S.A.) M.R.S.I.
(LONDON).]

Temperament.

THE predominance of a certain system of organs on account of a more or less conspicuous difference in moral or physical constitution, forms what is called temperament, of which there are four kinds, viz., sanguine, bilious, nervous, and lymphatic. Nowhere is there found an entirely unmixed specimen of any one of these temperaments the definition of which is based on characteristics which are variable in the same person, but can be easily recognized. Consequently in describing each variety we must suppose those characteristics which are distributed among different individuals to be united in an ideal subject.

Sanguine Temperament.—This results from the predominance of the circulatory system, of which the signs are a quick, frequent, and regular pulse; firm, well-developed and rounded muscles; a high fresh color; medium size.

Psychological Indications.—Great sensitiveness, quick perceptions, good memory, bright, lively disposition, and a tendency to amorous passion.

The Athletic Temperament.—which is an exaggeration of the preceding—is principally distinguished by much greater strength, the muscular system being so much developed that it seems to predominate over the rest.

Bilious Temperament.—This is caused by the superabundance of bile. The following are its distinguishing features: black hair, yellowish skin, strong, hard, and frequent pulse, muscles firmly developed, and sharp, incisive movements.

Psychological Indications.—Precocious intelligence, irritability, inclination to perseverance, courage, audacity, firmness, often dissimulation.

The melancholic temperament, which is an exaggerated form of biliousness, is distinguished by a dull inspiration, and a contradictory disposition.

Lymphatic Temperament.—Sluggish intelligence, deficient imagination, moderately strong passions, little activity, courage, or perseverance.

Nervous Temperament.—Physical signs: a pale colour, general emaciation, soft muscles, a thready and frequent pulse.

Psychological Indications.—Lofty ideas, quick sensibility, prompt determination, mobile and imperious disposition, leading to a studious or sedentary life.

In the great majority of individuals, two, or even more, temperaments are found in combination, with a marked predominance, however, of one of them. To these combinations the term “mixed or compound temperaments” is commonly applied, and compound terms are in use expressive of the union, the predominant temperament being first placed in order. Thus we may have a nervous-lymphatic, a sanguine-nervous or a sanguine-bilious temperament, the nervous element preponderating in the first, and the sanguine element in the last two cases.

Each of these temperaments is liable to a different class of diseases,—the sanguine, to acute inflammation and active hæmorrhage; the lymphatic, to congestions and sub-acute inflammation, to glandular and tubercular diseases; the bilious, to disorders of the digestive organs, to hypochondriasis and melancholia; and the nervous, to disorders of the nervous system, and to mental derangement accompanied by excitement.

Among the peculiarities of contours and *tout ensemble* of appearance characteristic of the various temperaments there are some which claim particular attention as indications of natural strength or weakness, and of liability to particular classes of disease. To wit, *cæteris paribus*, the large chest is

an indication of vigor ; the small chest of weakness ; the thin-lip, marked features, and small joints, of tone ; the full upper lip, rounded form and features, and large joints, of constitutional debility.

Sanitary Administration (1916).

Assam.

PUBLIC Health on the whole was not seriously affected during the year by the adverse meteorological conditions which prevailed. The death-rate per mille for the year was 28·59 as compared with 30·86 in the preceding year and a quinquennial average of 26·37. There were cholera epidemics of some severity in Goalpara, Darrang, Nowgong and North Lakhimpur, the outbreak in the last-mentioned locality proving particularly difficult to combat owing to the ignorance and prejudice of the people in that backward area. The increased efficiency with which the provisions of the Vaccination Act were administered produced a substantial reduction in the prevalence of small-pox during the year. The Chief Commissioner regrets that owing to the financial stringency caused by the war the consideration of special anti-malarial measures has had to be postponed. *Anti-kala-azar* operations, however, were maintained and four travelling dispensaries were at work during the year. A serious outbreak of *Kala-azar* came to light in a tea-garden in the Goalghat subdivision of the Sibsagar District. During a period of nine months, 68 cases came under observation, of which 23 had proved fatal. Remedial measures were at once undertaken ; and on the advice of the Sanitary authorities, the Chief Commissioner applied for, and has recently been granted, powers under the Epidemic Diseases Act (III of 1897) to enable him to deal adequately with the situation.

The provincial birth-rate was 30·52 per mille, as compared with 33·60 in 1915 and a quinquennial average of 32·75, the general decrease being attributable to the adverse economic conditions caused by floods and epidemics during the year.

The Chief Commissioner considers that the progress made in the improvement of urban water supply and drainage has been, on the whole, satisfactory and notes with satisfaction that, although funds were not available as freely as they have been in the past, considerable improvement in urban sanitation was effected during the year, and that increased activity and efficiency in sanitary administration has been displayed in most of the municipalities. In particular, the need for the improvement of conservancy and for dealing with insanitary privies is being more generally recognised, and with few exceptions, efficient action to remedy the latter evil is now being taken in municipal areas. Great credit is due to those Chairmen and Commissioners who have realised their responsibilities and are carrying out this somewhat unpopular reform.

Lucknow Municipal Administration (1916-17.)

DURING the year under review the Municipal Board worked partly under the new constitution which was inaugurated on 1st November 1916. In accordance with the new Act, the representation of the Muslim Community was increased from 20·8 per cent. to 37·5 per cent. As our readers are aware, the constitution as decided by Government did not meet the wishes of the Hindu members whose seats, we regret to observe, remained vacant, no candidates, following the example of Cawnpore, having offered themselves for election. In consequence, the Board at present consists only of 11 elected and 6 nominated members besides the Chairman. The latter is a non-official and, under the new Act, is charged with the responsibility of administering the affairs of the municipality. He is assisted in his duties by an Executive Officer who is a full time municipal official.

The finances, in spite of the abnormal conditions consequent on the war, were on the whole satisfactory. The income

from Octroi was the highest on record ; and the income under other heads exceeded the budget figure. The receipts during the year amounted to Rs. 12·88 lakhs not including an opening balance of Rs. 7·82 lakhs. The expenditure was Rs. 13·27 lakhs, and the year closed with a balance of Rs. 7·43 lakhs—rather a high figure. The normal recurring income showed an increase of nearly half a lakh over the previous year. The normal recurring expenditure was nearly Rs. 7½ lakhs. The large closing balance which is principally made up of various grants is not satisfactorily explained, and no reasons are assigned for the total expenditure being considerably below the estimated figure.

The general health was decidedly good. The average death-rate was 34·78 per mille. There were no serious epidemic outbreaks of plague, cholera or small-pox.

The Municipal Board went through an anxious time in connection with its water works. The circumstances which led to this state of affairs may perhaps be briefly explained. In 1913, it was felt that Lucknow had outgrown its water supply ; and the Municipal Board pointed out to Government that unless immediate measures were taken to supplement the supply before the hot weather of 1914, it would be necessary to curtail the supply. The recommendations of the Board were:—(1) the installation of an additional pumping plant, (2) an extra filter, and (3) increasing the capacity of the settling tanks by raising its banks. The Local Government, however, did not agree, and suggested that two balancing tanks on the distribution with a new engine at the filter beds would obviate any shortage in the supply. The real cause of the water famine was not that there was not enough water at the source of supply, but that the pumping plant at the Head works had become so worn out and depreciated that its capacity was not equal to the demands of the town. The Board therefore again pointed out to Government that with the existing plant, the new balancing tanks would not improve matters at all. Upon this, Government proposed the sinking

of tube wells to supplement the supply to which the Board seems to have agreed. The Public Works Department (Government) took eight months to sink the first tube well, and the trial test with an air plant showed that 480,000 gallons of water were obtainable from this well, and as a result three more wells were sunk. Meanwhile the old vertical engine was overhauled and brought into operation. Then it was found that the rotary engine installed required a complete overhauling and that the newly overhauled vertical could not be run to its full capacity owing to its foundations having settled down on one side. In addition, there was a fruitless controversy between the Board and Government as to whether air plant or electrically driven plant should be installed over the tube wells. As a result of this policy of drift and delay on the part of Government, notwithstanding the importunity of the Municipal Board, we find at the beginning of April 1917, three tube wells only being pumped with an air plant, the old vertical engine doing duty at the Pumping station, while the rotary engine is still *hors de combat* and the full capacity of the four tube wells is not utilised. The quantity from the latter available with the existing plant is 550,000 gallons a day to which should be added 1·25 million gallons a day pumped by the vertical engine, making a total of 1,800,000 gallons a day against a normal demand of 5 million gallons a day in the hot weather!

Such is the history of the water supply since 1913, and, in our opinion, the Board is right in disclaiming responsibility for the present state of affairs and in assigning the blame to Government. If Lucknow and other municipalities would open their eyes to the evil results of dual control, the above story would have served its purpose. We are confident that had the Municipal Board entire control of all its affairs, matters would not have reached such a pass. It should have been possible in 1913 or 1914, to replace the existing pumping plant by one of greater capacity, but we suspect that even under the new Act the Board had to seek the counsels of Government.

As a result of the unsatisfactory water supply, the sale proceeds of water decreased, road watering suffered, roads deteriorated, the efficiency of water-flushed latrines and pail depôts was considerably impaired, the drainage system could not be extended, nor was it possible to enforce the connection of private premises to municipal sewers. The water-flushed latrines could not be efficiently maintained. Special arrangements to cart night-soil had therefore to be made. Neither the drainage system, nor more water-flushed latrines and pail depôts could be added on account of the "cry for more water".

The following are a few statistics relating to the water works :—

Population	...	...	2,59,798
Consumption of water during the year	}	1,01,93,95,000	gallons
Annual charges including maintenance, interest and payment of loan		Rs. 1,92,299	
Income from water rate, sale of water, &c.		Rs. 1,60,951	
No. of house connections	...	...	4,625
No. of metered connections	...	...	341

Consumption is about 11 gallons per head per day, and the cost of water is a little over 3 annas per 1,000 gallons.

Owing to the difficulty in regard to water supply, we would advise the Municipal Board to try tarring operations on some of their important roads. Tar coating or macadamming will allay the dust nuisance, obviate road watering and lengthen the life of roads.

With regard to Education, the Board has 42 Vernacular Schools consisting of two Final, sixteen Primary and twenty-four Preparatory Schools. Besides, it maintains a High School, an Anglo-Vernacular Middle School for boys, and another one for girls. Every effort is being taken to maintain all these schools in an efficient state, a graduate in arts and teaching having been appointed to superintend the schools. We are pleased to find that in the matter of education, the Municipal Board of Lucknow is trying to do its duty by the

citizens. The total expenditure on education was Rs. 74,981 and of this sum Rs. 38,730 was spent on primary education.

With regard to Town Planning, and removal of congestion, steady progress appears to have been made, and we are glad the Municipal Board is fully alive to their importance and availed itself of the services of Professor Geddes, many of whose suggestions have been carried into effect. Other schemes for the improvement of roads and streets are pending the final orders of the Local Government. In the roads already opened and laid, building operations by private enterprise are proceeding steadily though slowly.

A number of congested localities were relieved at a net expenditure of Rs. 1,48,078, each locality being worked out according to its needs. "Generally speaking the areas were re-laid on rectangular lines with 25 ft. roads and 10 ft. sanitary lanes at the backs of the houses. Existing buildings were interfered with as little as possible, and in every case the hearty co-operation of the people affected was secured." In three of the areas, model houses of a type approved by the sanitary authorities have been erected. The results amply repaid the money spent on the fourteen schemes, and were a success from the sanitary point of view. After the conclusion of the operations, the vital statistics showed that in almost every one of the areas the deaths were less than before the operations were commenced, in four areas the deaths were twice less and in two areas as much as seven times less. The births too have correspondingly increased—splendid results in spite of an unsatisfactory water supply. Other Municipal Bodies and Local Boards will do well to note how much the health of a town depends not only on its water supply and drainage, but also on other factors such as light and air. Lucknow has proved that in spite of its unsatisfactory water supply and drainage, the birth rate could be increased and death rate lowered among the lower classes by the intelligent working out of schemes for the relief of congested areas.

In spite of adverse conditions, the Lucknow Municipal Board has done well during the year under review, and we congratulate Mr. Syed Nabı Ullah Sahib, the first non-official Chairman under the new Act, on his first report which, if somewhat lengthy, affords interesting reading.

The Improvement of the Milk Supply of Naini Tal.*

BEFORE attempting to deal successfully with improvements to the general milk supply of any municipality, as a preliminary step it is absolutely necessary for the United Provinces Prevention of Adulteration of Foods and Drugs Act to be applied to the town. The Local Government have at last agreed to the application of the Act to Naini Tal.

Actions to be instituted.

In attempting improvements to a milk supply, action must be taken under the following heads :

1. Improvements to byres.
2. Improvements to dairies.
3. Prevention of adulteration in transit.

(1) The sources of the dairy produce must be ascertained and improvements effected in the byres where the milk is liable to be contaminated with dung from unclean udders.

(2) In dairies where butter may be rendered dangerous by washing with polluted water or by the use of impure cream.

(3) In transit, during which water may also be added between the byre, the dairy and the consumer. This water is often of a foul nature and may further contaminate the milk.

We have therefore to deal with filth at the source in manufacture and adulteration in transit. Attention must also be directed to keeping the cost of the milk as low as possible.

* From a Report by the Health Officer.

From the work of Dr. Mann at Poona it is seen that—

- i. One sample bought at 4 seers per rupee was genuine.
- ii. Of three samples bought at 5 seers per rupee two had water added to the extent of 10% of the original milk.
- iii. Of three samples brought at 6 to 7 seers per rupee all were adulterated to the extent of $\frac{1}{2}$ of added water.
- iv. Of three samples bought at 8 to 9 seers per rupee all were adulterated to the extent of 135 parts of water for every 100 parts of original milk.

That is to say, if the pure milk is bought at 4 seers per rupee and 50% water, *i.e.*, 2 seers added, the milk of the same quality is priced at 6 to 7 seers; while 4 seers of milk to which 135% water was added would give 9 seers of adulterated milk. Therefore cheap watered milk is not really cheaper than pure milk though it appears to be so. The cost of pure milk should, however, be kept as low as possible, and to do this it is suggested that grazing or forest rights at Khurpa Tal should be given to Gwallas on the understanding that the milk is sold at a rate of 7 or 8 seers per rupee.

Sources of dairy produce at Naini Tal are as follows :—

- A. From recognized dairies.
- B. From cows kept within the station.
- C. From cows kept outside municipal limits.

A. The recognized dairies of Naini Tal are Kumaun Dairy, the Coronation Dairy, the King's Dairy.

(a) The first obtained the water for butter manufacture from Sipahidhara spring. A pipe used to lead direct from the Sipahidhara spring to the Gomukhi. It was broken a year ago. The whole stream is contaminated with sullage from Jail, from women's bathing and washing clothes in it, and by coolies using its banks for the purposes of nature. This direct pipe has never yet been repaired and is a standing menace to the health of the coolie traffic. The P. W. D. in whose charge the pipe is, has been addressed to repair the pipe.

The Coronation Dairy obtains its water from a spring below Krishanpur. The source was protected by a masonry covered tank from which the water was conducted to the dairy by a closed pipe.

The King's Dairy receives its water supply from a separate spring. This seems well protected but as all the springs on the hill side are in all probability leakages from the lake of which the water is greatly polluted and as the Sipahidhara spring will shortly be utilized as power for electric lighting it is recommended that these dairies be furnished with a pipe water supply or be removed to where such a supply is obtainable.

(b) *The Cream used in dairies.*—The cream for these dairies from which they manufacture butter is brought up from the plains, and the Bhabar and Terai, and arrives in a rancid condition, especially in the hot weather. The cream should be sterilized before manufacture.

B. Cows kept within the station. The difficulty with Naini Tal is that there are no good grazing grounds within or in the immediate vicinity of the station. The result being that to obtain pure milk, people with children must keep cows that they can see milked before them. The cowsheds are nearly all insanitary and when the occupier of a bungalow allows the gwalla to keep more than two cows and to sell to outsiders, steps must be taken to compel the byres to be put into a sanitary condition; no amount of pasteurizing will remove dung or organic matter from milk which entered it from dirty udders. The udders get into this state from the cow being obliged to lie down in its own dung. This can always be obviated by good construction of the byre floors. It is proposed therefore that Re. 1 per cow should be taken per annum from any gwalla where two cows are kept. That for each cow above two the license would be Rs. 2 per cow per annum with the exception of schools, clubs and hospitals, and the bye-laws proposed regarding construction must be enforced. There are two municipal byres—one

near the poultry houses, Malli Tal, the other at Talli Tal. These are very badly constructed and must be remodelled to conform to the proposed bye-laws.

C. From cows kept outside municipal limits. The Health Officer visits all these places once a year. The present condition of these houses, according to the Health Officer, is deplorable. The doors are merely holes in the walls, with difficulty admitting a person. The interior is quite dark. The atmosphere is laden with ammonia. There are no windows and no ventilation and the floor is inches deep in dung. It is difficult to see what can be done to improve this state of affairs as the distances are so great that supervision would be impossible. It might be possible to enforce the following bye-laws.

Doors to be 5 feet in height and 3 feet in width ; and 480 cubic feet per animal should be allowed. A window 2 feet by 2 feet should be made in the wall and the mud floor to be sloped 1 in 40 to a drain leading out of the building to discharge into an absorption pit.

The carriage of milk from these places is satisfactory as far as the actual receptacles are concerned. To improve the milk supply the Board considered the following suggestions :—

(A.1) That there should be two milking and collecting stations—one at Khurpa Tal and the other at Baldiakhan—to which the cattle could be taken and milked in the presence of a responsible officer.

(B.1) The second suggestion is that there should be two reception stations in Naini Tal—one at Malli Tal and one at Talli Tal. All milk brought into the town would be brought to these stations and tested and transferred into municipal milk buckets sealed so as to be impervious to water and supplied with a tap to draw off the milk. The gwalla would himself supply the milk to his customers and no further municipal expense would be incurred except for buckets. These buckets would be returned to the station and scalded

with steam. The Malli Tal station would be situated near the Municipal Vegetable Market in the open space between it and the poultry sheds, and would contain a sterilization or pasteurization plant.

A certain amount of milk would be taken direct from the gwallas and pasteurized and sold from the municipal shops, or if possible, from the ordinary shops, such as Govin & Co. and Shapoorjee. With the Gerber Milk Tester 16 samples of milk can be tested in 5 minutes, so little or no delay would take place between the arrival, test of the milk, and transfer to the municipal patent distribution tins.

The Board resolved that it should undertake to pasteurize tested milk at a central Depot, *viz.*, the Municipal Market and sell the pasteurized milk, in sealed bottles, to customers.

How Sanitary Methods should be brought Home.

DR. HOPE, the Medical Officer for Liverpool, in a report on the maternity and child welfare work of the City during the past year has enumerated some of the conditions which, he points out, have the profoundest influence upon maternity and infant welfare. Many of these conditions "are the penalties or legacies of apathy, ignorance, and parochialism of bygone generations, and they have been manfully dealt with, up to a point, with a rich reward in the improved health and happiness of the people." The fundamental needs comprise the following:—

Removal of Slums.

1.—The removal of every slum area within the city; the adequate opening up of narrow, confined, ill-ventilated streets and districts, and the suitable paving and surface treatment of all small residential streets. The provision of really adequate open spaces round every dwelling-house; also adequate playgrounds for children, so that the back-street and the gutter shall no longer be their playing place.

2.—An absolutely unrestricted water supply ; a perfected system to deal with refuse of every kind, domestic, trade, or other.

3.—Suitable sanitary provisions for the slaughtering of animals, a system which shall sweep away the present grossly insanitary conditions connected with slaughtering in all quarters of the city, and the nuisance, danger, and cruelty involved in the present system of driving animals through much-frequented and busy thoroughfares for slaughter. The improved system will facilitate the much-needed improvement in the inspection of meat foods.

Education on Health Matters.

4.—Increased facilities for a full and complete education on health matters, not only of every person engaged in any capacity or any occupation, involving questions affecting the public health, but for demonstrating the principles of sanitation to the general public and interesting the public in procedure carried out for the general welfare.

5.—Mention may be made of some pressing wants more specifically associated with motherhood and early childhood. A maternity hospital, up to date, and thoroughly equipped for every branch of the work ; at least four properly-constructed centres in different parts of the city for the purposes of ante-natal clinics, also day nurseries, infant clinics, and schools for mothers, are required.

Hospital for Infants.

6.—A hospital for infants and very young children suffering from ill-defined chronic ill-health, too ill to be treated at home, and for whom no provision has as yet been made elsewhere.

7.—An extended system to deal with the home nursing of measles and whooping-cough, and the provision of more hospital accommodation for these diseases.

8.—Regarding habits, incalculable mischief has been done by intemperance ; a single bout of drinking upsetting a household for a long period, during the whole of which the infants and young children are entirely neglected.

The Care of the Baby.*

I. Some Important Truths.

IT is easier, better, and cheaper to prevent than to cure disease.

2. Everything that protects the mother before her baby is born improves the health of the baby after its birth.

3. Many of the diseases observed in older children and adults begin in infancy.

4. Healthy babies make strong men and women.

5. The baby's food, home, and surroundings play an important part in keeping it well or making it sick.

6. *Mother's milk is the best food for babies.*

7. Cow's milk which has become infected with disease germs kills many babies.

8. Extreme heat and impure air kills many babies in the summer, especially bottle-fed babies.

9. The health and happiness of the whole household are improved by everything done to protect the baby.

II. General Suggestions for the Care and Feeding of Infants.

MOTHER'S MILK—NATURE'S FOOD.

1. The most loving act a mother can do is to nurse her baby. When the baby nurses, it not only gets the best food, but it is less liable to many diseases, such as "summer complaint," convulsions, and tuberculosis. Out of every 100 bottle-fed babies an average of 30 die in the first year, while of the breast-fed babies only about 7 out of every 100 die in the first year.

2. Nearly every mother can nurse her baby during the first 3 or 4 months of its life, and if she can nurse it for 10 months, so much the better.

* From a booklet prepared by the Committee of the American Association for the study and prevention of Infant Mortality.

3. There may be abundant supply of milk after the first few weeks, even if there is but little at first; the act of suckling causes the milk to come into the breasts, and increases the supply. It is very important that the baby nurse regularly.

4. If the baby is too weak to nurse, a healthy infant can be used to excite the flow of milk until the baby has grown strong enough to nurse. This should not be done without a physician's advice.

5. The only way to tell how much food the baby is getting is to weigh it before and after each nursing, for at least 24 hours. The clothes need not be removed, but the baby should be dressed in exactly the same way when weighed after nursing as before. (If the baby should soil its diaper after the first weighing, do not change it until after the second weighing.) In case the baby is not getting enough breast milk, the quantity lacking should be made up by properly prepared cow's milk. Let a physician decide this. This may be only a temporary shortage on the mother's part, and with suitable care the milk will probably increase so that the baby will eventually be satisfied with the breast only.

6. The following things influence the milk supply: Peace of mind is necessary for the mother; she must not worry; she should not get overtired. She should eat freely of her customary diet. The total quantity of fluids taken by her in 24 hours should not be less than 2 quarts; in hot weather more. Stuffing, however, is unnecessary and undesirable.

7. Consumption in the mother is practically the only disease that always forbids nursing. Paleness, nervousness, fatigue, pains in the back and chest, or the return of the monthly sickness are not sufficient reasons for the weaning, but when these symptoms are present or pregnancy ensues a physician should be consulted at once.

8. Shortly after birth, boiled water, without sugar, may be given to the baby at regular intervals until the mother's

milk supply is established. The baby, however, should be put to the breast at stated times, as often as the mother's condition permits.

Important Points to be Remembered in Nursing the Baby.

It is always wise to make nursing as easy as possible for the mother and to give her opportunities for rest. Therefore, the sooner the baby is satisfied and gaining on three-hour or even four-hour intervals the better.

Convenient hours for nursing the baby are as follows:

(1) Seven nursings in 24 hours: 6 a.m., 9 a.m., 12 noon, 3 p.m., 6 p.m., 9 or 10 p.m., and once during the night.

(2) Six nursings in 24 hours: 6 a.m., 9 a.m., 12 noon, 3 p.m., 6 p.m., and at the mother's bedtime; or at 6 a.m., 10 a.m., 2 p.m., 6 p.m., 10 p.m., and once during the night.

(3) Five nursings in 24 hours: 6 a.m., 10 a.m., 2 p.m., 6 p.m., 10 p.m., or later.

The baby should be offered cooled boiled water between feedings, especially during hot weather.

The length of time for a nursing varies with the individual and the breast. The average infant rarely nurses longer than 15 minutes. The important point is to satisfy the baby. If there is any doubt, let it nurse longer, but not more than 20 minutes. If it is not satisfied after 20 minutes, consult a physician.

It is customary to nurse only one breast at each feeding, and to use them alternately. If, however, the baby does not get enough from one breast, give it both.

It is important to keep the nipples clean; they should be washed before each nursing. Caked breasts or cracked nipples are usual causes of breast abscesses, and although they may be harmful to the mother, they do not make the milk poisonous for the baby. In both instances consult a physician.

(To be continued).

Municipal Bye-laws.

Doors and windows opening outwards over the public streets (Calcutta Corporation).

MANY complaints have often been made about windows and doorways obstructing public roadways. This practice is not allowed in any city of importance, and it obviously may frequently constitute a serious public nuisance. Complaints have also been made about the nuisance caused by stables, coach-houses and garages having openings directly on the public streets, specially in residential areas.

The Corporation have therefore passed the following bye-laws under sections 559 (15) and 559 (24) of the Calcutta Municipal Act and submitted them to Government for sanction :—

“No door, gate, bar, window or shutter on the ground floor of any building, wall or other structure whatsoever shall open outwards on to or over any public street without the special permission of the General Committee.

In localities in which the erection of only detached buildings is allowed, no stable, coach-house or garage shall have any doorway or any other opening which may admit of the passage of any carriage motor or other vehicle, abutting or opening directly on to any public street without the special permission of the General Committee in that behalf.

These bye-laws shall not apply to existing openings but to buildings to be erected or re-erected hereafter.”

Excavations for Earth (Madras Corporation).

(a) Without the sanction of the President no person shall, for the purpose of obtaining earth or sand for sale, make any such excavation as is likely to cause stagnation of water nor, without sanction, shall any person make such excavation for building purposes within 50 feet of any existing or proposed building.

(b) In cases where such excavation is made for obtaining earth or sand for purposes other than sale, the

person making such excavation shall, on being called on by the President to do so, fill up such excavation within the time specified by the President. In case of failure to comply with such order, such excavation may be filled up by the President and the cost of so doing may be recovered from the defaulter.

An appeal shall lie to the Standing Committee against any refusal of the President to grant such sanction and against any order passed by the President under clause (b).

Legislative Intelligence.

[Mysore.]

THE Government of His Highness the Maharajah of Mysore have published in the *Mysore Government Gazette* a Bill to make provision for the registration of births and deaths in rural tracts. The question of improving the system of collection, compilation and publication of vital statistics has been under consideration for some time past, but for want of statutory power to compel registration of births and deaths in rural areas, it was found that correct statistics could not be collected. Government have therefore found it necessary to legislate on the lines of the Madras Registration of Births and Deaths Act, III of 1899.

As section 48 of the Mysore Municipal Regulation, 1906, provides for framing bye-laws to compel registration of births and deaths in Municipal areas, Municipalities constituted under the Mysore Municipal Regulation are excluded from the operation of this measure. Power is reserved in the Bill (cl. 2) to extend the provisions thereof to specified villages or local areas from time to time.

[Bombay.]

Compulsory Primary Education.

The following Bill to be introduced in the ensuing sessions of the Bombay Legislative Council by the Hon. Mr. V. J. Patel, is published in the *Bombay Government Gazette*.

Bill No. 11 of 1917.

A Bill to provide for the extension of primary education in municipal districts in the Bombay Presidency other than the City of Bombay.

Whereas it is expedient to provide for the extension of primary education in municipal districts in the Bombay Presidency other than the City of Bombay; it is hereby enacted as follows :—

SHORT TITLE, EXTENT AND CONSTRUCTION.

1. (1) This Act may be called the Bombay Primary Education (District Municipalities) Act, 1917.

(2) It extends to the whole of the Bombay Presidency except the City of Bombay.

(3) It shall be construed as one with the Bombay District Municipal Act, 1901, hereinafter called "the principal Act."

DEFINITIONS.

2. In this Act, unless there is anything repugnant in the subject or context—

(1) to "attend" a recognised primary school means to be present for instruction at such school for so many and on such days in the year and at such time or times on each day of attendance, as may be prescribed by the educational department of the local Government;

(2) "child" means a child whose age is not less than six and not more than ten years;

(3) "parent" includes a guardian and any person who is liable to support or has the actual custody of a child;

(4) "primary education" means such instruction in reading, writing and arithmetic and other subjects (if any) as may be prescribed from time to time for a primary school by the educational department of the Local Government;

(5) "recognized primary school" means a school (or a department of a school) appropriated to primary education and for the time being recognised by the educational department of the Local Government as being maintained in accordance with the requirements of the said department;

(6) "school committee" means a committee appointed under section 28 of the Municipal Act.

ISSUE OF NOTIFICATION MAKING PRIMARY EDUCATION
COMPULSORY.

3. (1) The municipality in any municipal district constituted under the principal Act may, with the previous sanction of the Local Government, declare by notification that primary education shall be compulsory in such district.

(2) Such notification may be expressed to apply to the primary education either of boys or of children of both sexes and the provisions of this Act shall apply accordingly; provided that where a notification has been issued by a municipality with reference to the primary education of boys, such municipality may, in accordance with the procedure and subject to the conditions hereinafter enacted, issue a subsequent notification with reference to the primary education of girls.

(3) A notification under this section shall be published in the "Bombay Government Gazette" and shall be posted at the municipal office and at such other places, if any, as the municipality shall deem necessary.

MUNICIPALITY TO MAKE PROVISION FOR PRIMARY
EDUCATION BEFORE ISSUE OF NOTIFICATION.

4. A notification shall not be issued under section 3 unless the municipality has made, in schools maintained by the municipality, such provision as the educational department of the local Government considers necessary and sufficient for the primary education of all boys in the municipal district for whom such education would be compulsory on the issue of such notification, and for whom it would be necessary to provide accommodation in municipal schools.

RESOLUTION TO BE PASSED BEFORE ISSUE OF
NOTIFICATION.

5. A notification shall not be issued under section 3 unless the municipality has so determined by resolution passed at a general meeting specially called in this behalf, and unless such resolution has been supported by at least two-thirds of the councillors present at the meeting.

APPLICATION FOR SANCTION TO ISSUE NOTIFICATION.

6. Application for sanction to issue a notification under section 3 shall be made in such manner as may be prescribed by rules made under this Act by the Local Government, and such certificate or particulars as may be prescribed by such rules, showing that the requirements of sections 4 and 5 have been complied with, shall be furnished with the application.

SCHOOL COMMITTEE TO BE APPOINTED.

7. Where a notification has been issued in any municipal district under section 3, the municipality shall, if a school committee has not already been appointed, appoint such committee, and it shall be the duty of such committee, subject to the provisions of this Act and the principal Act, to enforce the provisions of this Act respecting the attendance of children at school and the employment of children.

DUTY OF PARENTS TO CAUSE CHILDREN TO ATTEND SCHOOL.

8. Where a notification under section 3 is in force in any municipal district, the parent of every child to which such notification applies shall, in the absence of a reasonable excuse as hereinafter provided, and if such parent and child ordinarily reside in such municipal district, cause such child to attend a recognized primary school in such district. (Cf. 39 and 40. Vict. c. 79, s. 4.)

MEANING OF REASONABLE EXCUSE.

9. A parent shall be deemed to have a reasonable excuse for failure to cause a child to attend a recognized primary school in any of the following cases :—

(a) where the child is prevented from attending school by sickness or other necessary cause ;

(b) where the child is receiving instruction otherwise than in a recognized primary school or has already completed his primary education.

ISSUE OF ATTENDANCE ORDER BY MAGISTRATE.

10. (1) Where the school committee is satisfied that the parent of any child who is bound under the provisions of section 8 to cause such child to attend a recognized primary school, has failed to do so, the school committee, after due warning to such parent, may

apply to a magistrate, and the magistrate shall fix a day for the hearing of the application and cause notice thereof to be given to the parent.

(2) On the day fixed for the hearing of the application or on any subsequent day to which it may be adjourned, and after hearing the parent, or his pleader if either is present, the magistrate, if satisfied of the truth of the facts alleged in the application, may pass an order directing the parent to cause such child to attend a recognized primary school from a date which shall be specified in the order. (Cf. 39 and 40 Vict. c. 79, s. 11.)

PENALTY FOR FAILURE TO OBEY ATTENDANCE ORDER.

11. (1) Any parent against whom an order with reference to a child has been passed by a magistrate under section 10 and who does not cause such child to attend a recognized primary school from the date specified in such order, shall, on conviction before a magistrate, be liable to a fine not exceeding three rupees.

(2) No court shall take cognizance of an offence under this section except on the complaint of the school committee. (Cf. 39 and 40 Vict. c. 79, s. 12.)

PENALTY FOR EMPLOYING CHILD IN CONTRAVENTION OF ACT.

12. (1) Whoever intentionally employs, either on his own behalf or on behalf of any other person, any child to which the provisions of section 8 apply, shall on conviction before a magistrate, be liable to a fine not exceeding twenty-five rupees.

(2) No court shall take cognizance of an offence under this section except on the complaint of the school committee, and before making any complaint under this section against any person, the school committee shall, unless such person has previously been convicted under this section in respect of the same child, cause a warning to be given to such person. (Cf. 39 and 40 Vict. c. 79, ss. 5, 6 and 7.

SCHOOL COMMITTEE MAY AUTHORIZE MEMBER TO APPEAR:

13. An application to a magistrate under section 10 and a complaint to a magistrate under section 11 or section 12 may be made on behalf of the school committee by a member of such committee authorised by such committee in this behalf.

EDUCATION CESS.

14. (1) Where a notification under section 3 is in force in any municipal district, the municipality may impose a tax, hereinafter called an "education cess."

(2) The municipality may select, as an education cess, any tax which may be imposed under section 59 of the principal Act.

(3) An education cess shall not be imposed unless the resolution of the general meeting, at which in accordance with section 60 of the principal Act the municipality determines to impose such cess, is supported by at least two-thirds of the councillors present at the meeting.

(4) The proceeds of the education cess shall be devoted by the municipality solely for the purposes of primary education.

(5) Subject to the provisions of this section, the education cess shall be imposed and levied in the manner prescribed in the principal Act for the imposition and levy of taxes.

REMISSION OF FEES

15. Where a notification under section 3 is in force in any municipal district, if the parent of any child who is bound under the provisions of this Act to cause such child to attend a recognized primary school shall declare in writing to the head master of any primary school maintained by the municipality in such district that he is unable to pay the fees ordinarily charged in such school, such child shall be admitted to such school free of charge during the period for which such parent is bound under the provisions of this Act to cause such child to attend a recognized primary school.

SCHOOLS TO BE OPEN TO INSPECTION.

16. All primary schools maintained by the municipality in any municipal district in which a notification under section 3 is in force shall be open to inspection by the education department of the local Government and the municipality shall maintain such staff, buildings and appliances for all such schools as the said department may from time to time require.

WITHDRAWAL OF NOTIFICATION ON DEFAULT.

17. Where the local Government is of opinion that any municipality has made default in any of the requirements of this

Act, the local Government may by notification in the "Bombay Government Gazette" cancel any notification which has been issued under section 3.

SAVING.

18. Nothing contained in this Act shall be deemed to affect the public revenues of the Bombay Presidency or to impose any charge on such revenues.

Statement of Objects and Reasons.

The object of the Bill is to enable municipalities to make elementary education within their areas-compulsory. The provisions of the Bill being permissive do not make it obligatory on any municipality to introduce the principle of compulsion in the system of elementary education under its control.

The example of advanced and civilised countries in the world clearly shows that in order to make substantial progress, in the diffusion of knowledge among the masses, it is necessary to resort to the principle of compulsion. The Elementary Education Bill of the late Mr. Gokhale was circulated throughout the country for official and non-official opinions. The opinions so received have since been published and their perusal leaves no room for doubt that the bill met with enthusiastic support from all classes of people in the country. In the course of the discussion on that Bill in the Imperial Legislative Council, the Hon. Sir Harcourt Butler suggested the desirability of amending by local legislation local laws so as to enable local bodies to introduce the principle of compulsion and there seems no valid objection to such a course being adopted.

In the case of several municipalities in the Presidency the number of boys in elementary schools is little more than half of the total number of boys of school-going age. It is absolutely necessary that such municipalities, if they are willing to introduce the principle of compulsion, should be empowered to do so by an appropriate enactment. The Bill contains necessary safeguards to ensure that municipalities do not abuse their powers by any hasty or ill-considered action on their part.

(Sd) V. J. PATEL,

Additional Member.

BANDRA, the 22nd June 1917.

Government Orders and Notifications.

[Madras.]

TRAVELLING DISPENSARIES.

IN G. O. No. 141, Medical, dated 30th November 1916, the Government approved the proposal of the Surgeon-General to open, as an experimental measure, three travelling dispensaries in the Presidency in charge of selected civil assistant surgeons for the treatment of patients in specially malarious tracts. They also expressed the opinion that, judged by the test of necessity for special treatment, the dispensaries should be located in the districts of (1) Nellore and Chingleput, (2) Bellary, and (3) Cuddapah; but before finally deciding the point, invited the views of the District Boards concerned as to their willingness to contribute one-half of the initial and recurring charges on the assumption that the Government contributed the other half.

2. The replies have now been received and considered by the Government. In view of the opinions expressed by the Presidents of the Nellore and Chingleput District Boards and of the inability of the latter to provide the necessary funds, the first of the dispensaries will work in the malarial tracts of the Nellore district alone, instead of over areas included in both districts. The other two dispensaries will be opened in the Cuddapah taluk of the Cuddapah district and Hospet taluk of the Bellary district as already proposed. The Surgeon-General is requested to depute as early as practicable competent civil assistant surgeons with a good knowledge of the vernacular of these districts. Their pay and allowances as well as those of the peons working under them will be fixed as shown in Appendix I to G. O. No. 141, Medical, dated 30th November 1916. The Presidents of the District Boards concerned are requested to see that the dispensaries are started as soon as possible and to submit at the end of a year a report on their working through the Surgeon-General.

3. As already stated, the Government are prepared to pay from Provincial funds one-half of the initial cost of equipment and an annual grant of one-half of the net maintenance charges of the dispensaries. The equipment grant will be disbursed by the Accountant-General on receipt of vouchers from the Boards showing the cost of the equipment purchased. The expenditure will be met from the provision made in the budget under 24-Ab. MEDICAL—Hospitals and Dispensaries—for the opening of new dispensaries.

4. The Cuddapah District Board has agreed to meet its share of the cost from the provision made in its budget for the opening of a new dispensary at Chitvel. The proposal of the President of the Nellore District Board to meet the Board's share from the allotment for anti-malarial measures in the district cannot be accepted. The Government consider that the Nellore District Board should be able to allot the required amount by omitting some of the new works for which provision has been made in its budget. The Bellary District Board also should meet one-half of the initial and recurring charges of the dispensary from its own funds, but in view of the generally straitened condition of its finances, the Government will be prepared to consider the question of increasing the assignment for this Board in the distribution of the annual lump grants to local boards—[G. O. No. 283 Med. dated 26-6-17.]

SUBSIDY TO CERTAIN DISTRICT BOARDS AND
MUNICIPAL COUNCILS.

The Government sanction the distribution among the district boards and municipal councils specified in the annexure to these proceedings of a subsidy of Rs 82,787 towards the construction of elementary school buildings. The local bodies concerned are informed that no additional grants for the works included in the annexure will be paid in future years. [G. O. 709, Home (Education), dated 29-5-1917.]

ANNEXURE.

District Boards.

Name of district board.	Name of taluk board.	Particulars.	Amount of subsidy recommended.
			Rs.
1. South Arcot	Chidambaram	.. For extensions to the elementary school buildings at— Lalpet Rs. 1,100 M. Parur .. " 950 Kadur .. " 970	3,020
2. Ganjam	Chicacole	.. For the construction of buildings for the three Panchama elementary schools at Tekkali, Narasannapeta and Jalumur.	3,600
3. Madura	Madura	.. For the construction of buildings for the elementary schools at— Uthangudi .. Rs. 2,200 Kodimangalam .. " 1,200 Udinippatti (Muhammadan) .. " 1,600 Seminipatti (Kallars) .. " 960 Orangampatti (Kallars) .. " 960	6,920
4. Malabar	Palghat	.. For the construction of a building for the girls' school, Koduvayur (estimate cost Rs. 2,000)	1,000
5. Tanjore	Kumbakonam	.. For the completion of the buildings, the construction of which has already been begun— Valanguman .. Rs. 3,610 For the completion of the buildings already begun— Tiruluranam .. Rs. 4,957	8,567
6. Trichinopoly	Karur	.. For the construction of buildings at— Thannalai .. Rs. 1,500 Vaagal (Girls) .. " 1,430 Mettumahadanapuram .. " 1,370 (Panchama)	7,520
	Kulitalai	.. Mahadanapuram (Girls) .. 1,880 Devadanam (Panchama) .. " 1,340	
Total District Boards ..			30,627

<i>Municipalities.</i>		Amount of subsidy recommended, Rs.
Name of municipality,	Particulars.	
1. Nellore	.. For the acquisition of extra site and construction of a building for the Municipal Panchama school, Navabpet.	4,000
2. Vizagapatam	.. For the purchase of sites and construction of compound walls for the Muhammadan school, Chengalraopet	4,000
3. Negapatam	.. For the construction of a building for the Gosha Girls' school, Negapatam — Site Rs. 3,500 Building " 6,500	10,000
4. Mannargudi	.. For the construction of a building for the elementary schools, Rajampalayam	8,300
5. Chingleput	.. For the completion of the town elementary school and additional subsidy for the construction of a building for the Muhammadan elementary school	4,050
6. Katur	.. For the construction of a building for the school at Tirumanilayur	2,600
7. Madura	.. For the construction of a building for one of the schools	10,000
8. Gunur	.. For the construction of compound walls and the extension of the Panchama elementary school building	2,000
9. Tirupati	.. Additional subsidy for the construction of a building for the Chinnangadi street elementary school	3,850
10. Tiruvannamali	.. For the completion of the following buildings :— Municipal Panchama school Municipal Muhammadau school Municipal School, Kilanathur	1,360
11. Palghat	.. For providing additional accommodation for the elementary school at Olavakode	2,000
Total Municipalities		52,160
Total District Boards		30,627
Grand Total		82,787

The Government sanction the distribution among the local bodies mentioned below of a subsidy of Rs. 17,085 towards the construction, etc., of elementary school buildings:—

Name of District Board or municipality.	Name of taluk board.	Particulars.	Amount.
Coimbatore District Board..	Gobichetti-palaiyam ..	Extension of Board Elementary School at Audiur ..	Rs. 880
	Erode ..	Extension of Board Elementary School at Uttama-palaiyam ..	355
	Coimbatore ..	Extension of Board Elementary School at Madukkarai ..	540
	Do. ..	Extension of Board Elementary School at Veerapandi ..	1,140
	Do. ..	Sinking a well in the school compound at Karamadai ..	220
	Total, District Board ..		<u>8,085</u>
Coimbatore municipality ..	..	Construction of an Elementary School at Ramanathapuram.	4,000
Ongole do ..	..	Construction of buildings, compound wall, etc., in connection with certain elementary schools ..	2,000
Ellore do ..	..	Extension of two elementary schools and construction of a building for a Panchama school ..	8,000
Total, Municipalities ..			<u>14,000</u>
Grand Total ..			<u>17,085</u>

2. The Accountant-General is requested to place the amounts at the disposal of the local bodies at an early date.

3. The expenditure will be met from the provision of Rs. 1,00,000 made in the current year's budget estimate under "22-E. EDUCATION—Government Schools, General—Payment in support of local board and municipal schools—for contribution to local bodies for the construction of elementary school buildings."—G. O. No. 843, Home (Education), dated 23-6-17.

There is a provision of Rs. 3.72 lakhs in the Civil Budget Estimate for 1917-18, under the head 24-Bb. Sanitation—Grants for sanitary purposes—Contribution for sanitary purposes—(2) Grants for water-supply and drainage schemes, for grants to local bodies on account of water-supply and drainage schemes. A sum of Rs. 2,64,645 is now distributed from this grant in the manner shown in the annexure to this order.

2. The Accountant-General is requested to disburse the amounts now sanctioned to the local bodies concerned who will in their turn place the amounts at the disposal of the Public Works Department when required by that department.

Annexure.

Name of local body.	Nature of scheme.	Amount of grant. Rs.
1. Masulipatam Municipal Council	Water-supply scheme	.. 80,000
2. Anantapur Municipal Council	Do.	.. 1,000
3. Chingleput Municipal Council	Do.	.. 15,000
4. Cuddapah Municipal Council.	Water-works improvement	.. 20,000
5. Masulipatam Municipal Council.	Drainage scheme	.. 2,100
6. Madura Municipal Council.	Water-works improvements	.. 89,105
7. Do. do	Drainage scheme	.. 50,000
8. Ootacamund Municipal Council.	Connecting certain buildings on Jail Hill with the drainage scheme.	540
9. Berhampur Municipal Council.	Water-supply scheme	.. 3,500
10. Kurnool Municipal Council.	Water-works improvements	.. 1,400
11. Ongole Municipal Council.	Water-supply scheme	.. 2,000
Total..		<u>2,64,645</u>

[Bombay.]

RE-ESTABLISHMENT OF THE ERANDOL MUNICIPALITY.

Whereas by an order made under section 179 of the Bombay District Municipal Act, 1901, and published in Government Notification. No. 5366, dated the 6th September

1911, the Municipality of Erandol was, for reasons therein stated, declared incompetent to perform, and to have persistently made default in the performance of, the duties imposed on it by law, and to have gravely abused its powers, and was therefore superseded for a period of three years, which term was subsequently extended for a further period of three years under the orders contained in Government Notifications No. 8231, dated the 14th October 1914, and No. 5504, dated the 14th August 1916 ;

And whereas the period of supersession specified in the said orders will expire on the 5th September 1917, and it will be necessary to re-establish the said Municipality from the date next following ;

Now, therefore, the Governor in Council, having taken into his consideration the circumstances attending the said supersession and the results of recent enquiries, is of opinion that the Municipality should be re-established with effect from the 6th September 1917. His Excellency the Governor in Council is accordingly pleased, in exercise of the powers conferred by clauses (a) and (b) of section 11 of the District Municipal Act, 1901 to direct that the Erandol Municipality shall, on and after the 6th September 1917, consist of fourteen councillors (inclusive of the President) of whom seven shall be elected and the remainder nominated, and that of the nominated, councillors three may be salaried servants of Government.

Recent Publications.

THE PLANNING OF THE MODERN CITY. A Review of the principles governing City Planning. By Nelson P. Lewis. London. Chapman & Hall. Price 16s. 6d. net.

EXPERIMENTAL BUILDING SCIENCE. By J. L. Manson, Head of the Building Trades Department, Leicester Technical School, Vol. I. Cambridge University Press. Price 6s. net.

ELECTRICAL ENGINEERING PRACTICE. A Practical Treatise for Civil, Mechanical and Electrical Engineers. Illustrated. By J. W. Meares, Electrical Adviser to the Government of India, assisted by R. E. Neale, 3rd edition. Revised and Enlarged. Price 25s. net.

TUBERCULOSIS AND HOW TO AVOID IT. By Clive Riviere, F.R.C.P. Methuen. Price 1s. net.

Notes of Cases.

Contracts by Local Authorities.

The Irish Judge, Mr. Justice Dodd, in a case of *Guardians of the Poor of Kells, Union v. Smith*, on May 1st, delivered an important judgment on a question of contracts by local authorities. In response to an advertisement published by plaintiffs, defendant tendered for the supply of meat, and his tender was formally accepted by the Guardians. Before, however, a formal contract was agreed upon, or a bond entered into, the defendant withdrew the tender. The Guardians, however, treated the offer as binding both upon themselves and upon defendant. Upon the failure of the latter to supply the meat required, the plaintiffs purchased elsewhere, and then commenced proceedings for the loss which this course entailed upon them. For the contractor it was argued there was no contract whatever, and the guardians were therefore wholly disentitled to take the course which they had taken. His Lordship allowed plaintiffs to amend the claim to one for breach of agreement to complete a formal contract, and then gave judgment for plaintiffs and nominal damages. The question in the case, declared his Lordship, went to the very root of public administration, and it was necessary to establish beyond doubt that public undertakings could not be broken with impunity. Under the decision each party has to bear his own costs.—*Law Times*.

Correspondence.

Local Self-Government in North Arcot.

THREE years ago, the Doosi Union (Cheyyar Taluq, N. Arcot District) came into existence with a nominated non-official Chairman and a panchayet of 12 nominated members including 4 officials (Village Munsiffs). After three years' successful term of office of the non-official Chairman, the young and inexperienced Village Munsiff of this place, an official, was recently appointed in preference to several educated and influential non-official Mirasdars paying a *beriz* of over Rs. 100 to Rs. 500 to Government, and in spite of a representation for the appointment of a non-official and at a time when appointments of non-official Presidents and Vice-Presidents to Taluq and District Boards are being made with success. We also understand that similar appointments are being contemplated to the Panchayet also. We, villagers in the mofussil, are quite helpless in the matter, and we desire to bring this to the notice of your numerous readers.

A RATEPAYER.



The Local Self-Government Gazette.

Vol. III, No. 8.]

AUGUST

[1917

Terminal Tax in India.

WE have been favoured with a copy of the report of the Committee of the Nagpur Municipal Council, which was appointed, at the instance of the Government of the Central Provinces, to consider the question of the introduction of a terminal tax in that municipality. Our readers are aware that the possibility of levying such a tax in this Presidency has been widely discussed in recent years and that, in fact, a terminal tax on railway passengers is among the taxes provided for in the Madras City Municipal Bill which will be shortly introduced in the Madras Legislative Council. We propose, therefore, in briefly reviewing the Report of the Committee, to state the main principles which should, in our opinion, regulate the imposition of terminal taxes.

Terminal taxes are of two kinds—taxes on goods and taxes on passengers. The first replaces the “octroi” which is the main source of revenue of Municipal Councils in Northern India, and the second is of the nature of what is ordinarily called the “pilgrim tax.” The Nagpur Committee deals with the first form of terminal tax.

The “octroi” in certain provinces is what the “house tax” is in Madras. It yields the bulk of the revenue of Municipal Councils. In the Punjab, more than 85 per cent. of the income of municipalities comes from this source; in the United Provinces, more than 65 per cent.; in the Central Provinces over 60 per cent.; and in Bombay over 45 per cent. It can hardly be contended that the “octroi” is an “economic”

tax. Its good points are that, in North India, the people are accustomed to it and that, as it is paid in small amounts, it is hardly felt as a burden. But it offends against possibly every canon of taxation. It is difficult and wasteful to collect, places large powers in the hands of subordinates, provides constant opportunities for fraud and, if not properly regulated, raises the price of necessities of life. It is also found that "in many places, it constitutes a serious burden on trade in general, and in particular on through trade notwithstanding the provision for refunds". From the point of view of Municipal Councils, these "refunds" are a serious drawback in the "octroi" system. The Nagpur Committee points out that, owing to various causes, the refunds come to about half the total collections and they involve more trouble in calculation and actual disbursement than the collection of the tax.

Owing to these undoubted evils, the need for a change in the system became imperative, and the Government of India have sanctioned an experiment under which light transit duties are imposed on imports or exports, subject to no refunds, and are collected by the agency of Railway Companies, these latter being remunerated for their services. From the report of the Committee before us, it is seen that the experiment has proved successful in Cawnpore and other places.

Under the modified system, the questions for consideration are:—What articles should be selected for the duty—all those on which "octroi" was levied or only a smaller range of articles? Should collection of duty on the road-borne traffic be undertaken along with the railway-tax? Should there be provision for refunds? On what principles should the rates of duty be fixed?

The Committee deals with all these complicated issues in its report. Naturally enough, the main consideration has been how to raise by the new method all the revenue which the "octroi" yields—about $2\frac{1}{2}$ lakhs a year—and the Committee is unable to suggest exemption from the duty of any appreciable number of articles and desires to levy tax on

road-borne traffic ; while the rates, though readjusted, do not differ widely from those now in force. These conclusions were in the circumstances of Nagpur inevitable, and that such a strong Committee—composed of gentlemen whose authority will be accepted all over India (like Sir G. M. Chitnavis and Sir B. K. Bose)—could not produce a simpler scheme demonstrates the difficulties inherent in the question.

On *a priori* grounds, we consider that, in the modified scheme, the duties should be lighter than under the “octroi” system ; that they should be fixed on a smaller range of articles ; that, in selecting these, care must be taken that the poorer classes are exempted from the burden as far as practicable and that there is the minimum of interference with through trade ; and, lastly, that there is no tax on road-borne traffic in addition to the duty on rail-borne traffic as the former would reproduce, though on a smaller scale, all the evils of the old “octroi” system. How far these principles can be approximated to in actual practice, it is difficult for us to say ; but the Nagpur Committee’s report shows that, in the larger towns at least, the ideal cannot be realised.

But, as we said above, the terminal tax on goods does not concern us in this Presidency. South Indian Municipalities have from the beginning raised a large revenue from the house tax, and the “octroi” is not familiar to us. We are at present interested in the terminal tax on passengers, which is levied in Benares, and also in Calcutta by the Calcutta Improvement Trust.

In Bombay, a “pilgrim” tax is levied under section 59 of Act III of 1907. This is imposed either all the year round or in connection with special fairs and festivals, etc. When imposed on persons coming by road, this tax is open to all the objections raised against the “octroi” ; it leads to fraud and oppression and is wasteful and expensive to collect. A terminal tax on passengers entering (or leaving) a town by railway, levied as a surcharge on railway fares is, however, not open to these objections and it is this that is proposed for the

Madras City in the new Bill. The strongest argument in favour of it is that, under this system, the temporary sojourner who enjoys the amenities of the life in the town contributes towards the support of the services undertaken by the Municipality.

Even this tax can be imposed only under the strictest safeguards. *First*, it should be levied only in the large Presidency towns or in the most important of pilgrim centres in which local authorities have to make elaborate sanitary arrangements in the interests of large concourses of pilgrims. *Secondly*, the tax should be a very light one collected by a surcharge on railway tickets. *Thirdly*, there must be no interference with persons coming by road ; it follows therefore that there should be a radius of exemption in regard to passengers by railway as well. *Lastly*, the tax raised should not be merged in the general revenues but must be set apart for large sanitary schemes—schemes of water supply or drainage, the provision of permanent accommodation for pilgrims, &c.

Subject to these restrictions, a “terminal tax” on railway passengers would be a very beneficial form of tax not felt as oppressive or burdensome and would be welcomed by public opinion in this Presidency. In fact, the volume of educated opinion in favour of it is large and we trust that, in the forthcoming legislation, Municipal Councils and Local bodies will be empowered to levy this tax with the sanction of the Government.

Land for Houses.*

[BY LORD LEVERHULME.]

Part I.

ON considering the problem of Housing after the War, I do not think there can be found any half-way course by means of Government loans advanced to such private individuals or public Companies as might be willing to

* Originally addressed to the readers of the *Liverpool Courier* and now revised by the author.

undertake the building of houses, and what I may call the "Whole Hogger" policy of Government itself, either directly or through municipalities, undertaking the full burden and responsibility of building the houses and of providing the whole of the necessary capital required to accomplish this, and of then letting the houses so built and owned by Government to tenants at such rentals as could be obtained from the prospective tenants for whom they had been built. Such rentals would be certain to show a heavy loss, but that heavy loss would have to be faced, like losses caused by the war, in the interests of the health, efficiency, and well-being of those for whom the cottages were intended. I do not believe that any tinkering with the question in the way of finding, by means of loans or advances up to, say, three-quarters of the money, would be any stimulus at all. It will be perfectly obvious to the man who, it is hoped, will find the other quarter of the capital that he has accepted the portion of the amount expended which was most hazardous, and which would be the first portion of the investment to melt away and disappear when war values came down to those of ordinary peace conditions. In other words, I do not think that any builder or business man would find the margin that the advancement scheme requires. The risk would be altogether too serious and too great.

Free Sites to Induce Building.

This margin of loss might be met by a free gift of the site of the cottage. This would give the builder at once a margin of a freehold site on which to build his house. He would then be able to finance the cost of the house, and the remaining margin he would in all probability be quite willing and able to find. The great inducement would be that the site was free, and therefore he started with an initial margin on the building of the house. Municipalities must face the task of offering facilities for the erection of better cottage houses in suburban districts, the rents of which, together with the cost of transport of the occupiers to and from their daily work, should be less than the rental demanded for

inferior houses in the congested districts. The benefit would thus be two-fold. There would be provided newer and better cottage houses for the working classes, and a blow would be struck at the evil of overcrowding in our towns and cities.

Precedents for Course Proposed.

I know of no better way in which this can be done than by the municipality acquiring suburban land in large quantities, at reasonable prices, and offering this land absolutely free for the immediate erection thereon of cottages, in conformity with building bye-laws specially drawn up for dealing with the same. I am aware that this will sound at first a very revolutionary proposal, and further, that it will appear to many as absolutely unfair to the remaining portion of the population. In reality it is neither. It is not revolutionary, because we have ample precedent for the course proposed. Have we not fully admitted the nation's responsibility for the education of the nation's children, and have we not recognized that the only way in which we can ensure that all children shall be educated is to make education free? We have seen that the millions we spend annually on education are, to a certain extent, wasted owing to the improper housing of the people. Therefore, to give free land to ensure the proper housing of the people is only the application of a principle we have already accepted. As to the objection that it may be unjust to the remaining portion of the population, the rates payable on the property built on this free land would not only pay for the land which was being given, but, in addition, result in a profit to the municipality adopting this policy. Therefore the proposal is neither revolutionary nor unjust.

How Free Gift of Land will work out.

But, it may be asked, is it absolutely necessary to provide free land? Cannot we leave this question of free land alone, and proceed in some other way? Believe me, there is no other way than first dealing with the question of land for houses. All other methods are simply tinkering with the

evil we would remedy. From the point of view of the municipality, how would the free gift of land for building purposes work out? The Corporation has an acre of land which has cost them, say, from £100 to £200, and on which they permit the building of twelve cottages of a rateable value of £15 each. They would at once have a rateable value of £180. The interest and sinking fund on the site would thus be more than covered by the increment to the rates. It is well known that in opening up new building land, the cost of roads and drainage are borne by the builders of the property. It might be necessary that this work should be done by the municipality free, in addition to finding the land. Even this would not be too powerful a stimulus to induce building by private enterprise. In fact, the proposition will have to be made extremely attractive to induce such wholesale building as is required to overtake the present starvation in cottage houses. I submit that this is a sound proposition under which building would be carried out in districts where most needed, and where there exists a dearth of houses, promising the builder the surest return.

Cottage Rents will be Lower.

The whole proposition must be made attractive to the builder. But in making it attractive to the builder, we must do so on such grounds that the personal interests of the builder will induce him and compel him to make his cottages, when erected, equally attractive to the prospective tenants. But it may be urged that the mere giving of the land would effect no reduction in rents; and that the cottages built on free land would not necessarily be let at such rentals as would be any inducement in attracting from the centre to the suburbs. This is not so. Dear land is the chief cause of high rents for cottage houses. The cheapening of the land will be the most powerful factor in reducing cottage rentals. Let municipalities use reasonable care and judgment in securing suitable positions for the erection of working men's houses, and builders will not be slow to avail themselves of the advantages offered.

Competition will prevent any excess in rents being demanded. The law of supply and demand will govern the number of houses, and the whole tendency will be in the right direction.

There is another important aspect of this matter to be considered, but that must be dealt with in another article. For the moment let me content myself by stating that to offer a man £20 towards building a house would not solve the difficulty. *Relieve the builders of the expense of the land, the drainage and sewerage, and the houses would go up like wild-fire.*

Deputation to Lord Rhondda.

LORD Rhondda received a deputation from the Garden Cities and Town-Planning Association with special reference to the adoption of Garden City methods in after-the-war housing and the utilisation of public utility societies. The main arguments were submitted in the form of Memoranda which we reproduce below :

Memorandum I.

EXISTING HOUSE AGENCIES.

The Association has always recognized that there is need for every possible agency in the provision of housing, and there will be found, on some estates, examples of all the chief methods side by side—houses provided by the local authority, houses provided by private enterprise, houses provided by public utility societies, and houses provided through building societies. On the smaller estates the entire housing has been done through Public Utility Societies.

With regard to present methods of housing it may be observed :

(a) *Private Enterprise*.—In the past, private enterprise has provided the great bulk of the housing accommodation in this country ; but sometimes it has not been too well done, and on vast areas, particularly on the suburbs and fringes of growing towns and villages, it has been badly done. But at the present time the great difficulty about cottage building by private enterprise, even of the better sort of building, is that for years past there has not been sufficient inducement to builders to lay out their money on cottage

property, and with the increasing cost of building materials, culminating with the almost complete stoppage during the war, the industry is in a very difficult position to-day.

(b) *Building by Local Authorities.*—It must be recognized that there are often difficulties in the way of municipal housing. Many people are determined opponents of any form of municipal enterprise, and the proposal of a municipal housing scheme is often sufficient to inflame a whole district, and the housing scheme is involved in local and Imperial politics, with a result too often apparent. Even where there is a willing authority, a municipal housing scheme must necessarily involve many months of preparation and discussion. After the ratepayers and Council have been convinced, land has to be secured, plans made, the approval of the Local Government Board obtained, loans secured, and the whole arrangements entered into, and in the various phases through which the scheme has to go many modifications have to be made to suit this or that interest or objection, which are sometimes seriously detrimental to the well-being of the scheme.

(c) *Public Utility Societies.*—The Association suggests that by means of Public Utility Societies, the objections to both the foregoing methods may be avoided, and that advantages not possible to either may be secured.

The only statutory definition of a Public Utility Society is contained in the Housing, Town-Planning, etc. Act, 1909, which defines it as a society registered under the Industrial and Provident Societies Act which limits its dividend or interest to a maximum of 5 per cent.

The activities of housing societies of this nature are of quite modern growth. They started with the work of Tenant Co-operators Limited, who provide in their scheme that the surplus profits made should be allotted to their tenants in the form of bonus, and as much as half a crown in the pound dividend on rent has been declared in this way in some years. Through the efforts of Mr. Henry Vivian and others associated with him, the co-partnership movement grew up, which has provided, at Hampstead and elsewhere, some of the choicest examples of housing the world has seen. Since then the movement has spread, and at the present time, the Central Committee of Public Utility Societies, which is a

committee of the Garden Cities and Town-Planning Association, embraces over seventy societies in different parts of the country, which have between them already built some eight thousand houses of various sizes, and which own or hold some six thousand acres of land, for all of which lay-out plans have been prepared, and for which housing schemes have been made, so that at any time when materials, labour, and money are available, building operations can be resumed.

In addition to the land held by Public Utility Societies, other bodies connected with the movement, including First Garden City Limited, Letchworth, own nine thousand acres of land for which plans are prepared, and of which 1,500 acres have been developed.

Memorandum II.

SUGGESTIONS.

In view of the fact that for some time after the termination of the war building operations will be very difficult to conduct, owing to the increased price of money, labour, and materials, the Association suggests that the following changes are necessary to ensure the full employment of Public Utility Societies :

(a) *Period of Loan.*—Loans of the Public Works Loan Commission are for terms of thirty and forty years, a higher rate of interest being charged for the latter term. It is suggested that these terms are much too short, and that as repayments of principal are made during the whole term, tending to a constantly appreciating security, the time should be extended to eighty years for land and sixty years for houses.

Although in the past loans have been granted for thirty or forty years only, Public Utility Societies have generally considered, in the interest of cheap housing, that it would not be fair to charge the present tenants rents to cover the whole of the sinking fund required to pay a thirty-year loan. The period of repayment of capital from revenue has therefore been fixed at sixty years, and the difference in these two amounts has been made up by the societies by new investments which were constantly coming in. This has been a very real benefit to the tenants, but at the present moment it is proving a serious obstacle to societies which, while on the one hand prevented by the Rents and Mortgages Act from raising their rents, do not get the same advantages as those borrowers whose

mortgages cannot be called in, but have to repay regular instalments of their mortgage advances. It may be taken that a house which might be let at 6s. 6d. a week, with a sixty-years' sinking fund, would cost 8s. with a thirty-years' sinking fund. While, therefore, the tenants are receiving this substantial benefit, the societies are suffering to a like degree.

(b) *Proportion of Loan.*—Under the Housing, Town-Planning, etc. Act, 1909, Section 4 (I), the Public Works Loan Commission are empowered to lend up to two-thirds of the value of the property, but owing to the methods of valuation the amount received is often less than two-thirds of the cost. This is especially the case where societies try to keep the rents as low as possible, the property being valued upon the rents at which the houses are let. The Commissioners have recently fixed maximum rents in different localities.

In view of the difficulties which will exist in regard to the provision of private money for housing purposes, it is urged that the proportion of loan should be the total value of the land, including roads, and 90 per cent. of the valuation of the houses.

In this connection the Association would point to the precedent of the Housing Act No. 2, 1914, with the reservation that provision of housing should not be dependent upon unemployment in the district.

(c) *State Guarantee of Interest.*—As a means of encouraging the investment of money of private persons in Public Utility Societies, with a minimum of risk to the State, the State should guarantee the interest on that proportion of the cost which is privately subscribed.

(d) *Rate of Interest.*—It is essential that the loans to Public Utility Societies should be at the same rate as those to local authorities. It may be pointed out that an increase of 1 per cent. in interest on £200 is equal to an increase of rent of 9d. a week, and probably 3d. per week additional in rates. Therefore, with anything like the present rate of interest, which means an increase of about £2 per cent. over the pre-war rate paid to the Public Works Loan Commission, the rent of a cottage which cost £200 must be increased by 1s. 6d. to 2s. per week to meet the extra interest. Further, there is the additional cost of maintenance through increased cost of wages and materials.

(e) *Advances during Building.*—In order to conduct building operations as economically as possible, it is necessary that Public Utility Societies should receive the ordinary advances during the course of building, instead of incurring the expenses of advances from Banks and other sources.

Under Section 67 of the Housing of the Working Classes Act, 1890, it would appear that the Public Works Loan Commission are empowered to make such advances, but in practice no such advances are made.

(f) *Definition of Working Classes.*—Housing loans made by the Public Works Loan Commission may be applied only for the erection of houses for the working classes.

The segregation of classes by the erection of one type of house only in a given area is contrary to the practice recommended on the estates built on the Garden City method.

Difficulties have, however, arisen from the interpretation of the term "working-classes." The only statutory definition is that in the schedule to the Housing Act of 1903, where it is enacted, for the purposes of this schedule, "the expression 'working-class' includes mechanics, artisans, labourers, and others working for wages; hawkers, costermongers, persons not working for wages, but working at some trade or handicraft without employing others, except members of their own family, and persons other than domestic servants whose income in any case does not exceed an average of thirty shillings a week, and the families of any of such persons who may be residing with them."

The Public Works Loan Commission have extended this definition to include any person in any part of the country earning not more than £2 per week. This still operates unfairly, as it will be observed it includes an artisan earning £5 per week and excludes a clerk, school teacher, etc., earning at the rate of £2 2s. per week.

Such a person earning £2 a week who receives a rise in his salary at the rate of 2s. per week would, therefore, not be entitled to a house built with Public Works Loan Commission's money.

While recognizing that similar difficulties would always exist, whatever the limit, it is urged that inasmuch as all persons earning

not more than £160 per year are insurable under the provisions of the National Insurance Act, the same limit should apply to the provision of houses for the working classes.

(g) *Grants in aid*.—It being recognized that grants in aid can be regarded only as a temporary expedient to enable housing to be done at a time when not only is much housing needed, but it is desired to provide employment for demobilized members of His Majesty's forces, and that this can only be done by making a grant to meet the cost of building over and above the price at which a house can be let at an economic rent, it is suggested that such grants in aid should be made to Public Utility Societies on the same terms as to local authorities.

Memorandum III.

SAFEGUARDS.

It is recognized that if public money is to be placed at the disposal of Public Utility Societies, it will be necessary that there shall be safeguards against misuse. For this purpose, provision should be made for the creation, or recognition, of some central body which should have power of supervising the management of societies, and investigating their working and their accounts. There should also be restrictions as to the method of building. At the present time the Public Works Loan Commissioners do not—possibly cannot—trouble themselves with the planning of the sites on which the houses are built. It is immaterial to the Commissioners whether the houses are run up in long rows of one type, opening directly on to the street, with little or no garden space and without any of the amenities of life, or whether they are provided under Garden City conditions.

Grants and loans should be made only where there is a definite lay-out plan capable of inclusion in a town-planning scheme, with due provision for open spaces and social amenities, the number of houses to the acre being limited according to the circumstances of the neighbourhood.

Memorandum IV.

CO-OPERATION WITH LOCAL AUTHORITIES.

In districts where the local authority is fully engaged with other work—a condition of things likely to prevail extensively on

the conclusion of war—or where other special difficulties exist, co-operation between the local authority and a Public Utility Society might help to solve the difficulty of housing. For this purpose local authorities would require to have power both to form Public Utility Societies themselves or to invest in societies already formed or to be formed.

If local authorities are given facilities for promoting Public Utility Societies, the finance will be greatly facilitated. The local authority will be able to borrow from the Government on favourable terms on the security of the rates, and by letting the land on lease to the societies there would be ample security for the money, while at the same time the provision of decent housing facilities would attract a better class of working-man resident, and the rateable value of the town would be increased.

Co-operation by the local authorities with private investors and tenants might be effected in the following ways :

1. By purchasing and developing land and leasing it to the societies for periods of 999 years at ground rents which will be sufficient to cover the interest and cost of administration, for as the land will continue to be the property of the local authority, there seems no reason for the repayment of the capital cost of the land. Alternatively, the local authority could convey the land to the society subject to a chief rent.

2. By investing in funds of societies and making advances on mortgage to them. This may be done in the following manner :

- (a) Local authorities to borrow from Government on favourable terms on security of rates.

- (b) Local authorities to be able to advance 80 per cent. by way of loan and to invest not more than 10 per cent. in shares or loan stock or in both.

- (c) Remaining 10 per cent. to be subscribed by tenants and other local investors with interest guaranteed.

- (d) Management Committee to consist of representatives of local authorities and investors.

For the purpose of assisting societies not promoted by local authorities, the following proposals are submitted :

Increased powers to enable local authorities to purchase, own, and develop land and to lease it or convey it subject to a chief rent, to Public Utility Societies for the erection of dwellings—

(a) Land compulsorily acquired *as well as land acquired by agreement* to be available for leasing.

(b) Land to be available for all classes of property. The larger houses to be taken as collateral security for loans for the cheaper houses, or erected by private money.

(c) Land to be purchased and developed, and leased to the societies for periods of 999 years at ground rents which will be sufficient to cover the interest and cost of administration, for as the land will continue to be the property of the local authority, there seems no reason for the repayment of the capital cost of the land.

(d) Local authorities to have first option to purchase property when a Public Utility Society is dissolved, or desires to sell all or part of its land, subject to the rights of mortgagees.

It would seem to have been the intention of Section 5 of the Housing Act, 1900, that municipalities should have the power of securing land, forming roads, and leasing, but the Association is advised that this Section does not give the powers sought.

Memorandum V.

COMPULSORY ACQUISITION OF LAND.

In view of the great difficulties existing in many districts, it would seem necessary in order to provide houses, that Public Utility Societies should have power, through some body charged with the duty, to acquire land compulsorily for housing and town planning purposes.

Memorandum VI.

COMPOUNDING FOR RATES.

The Association would urge that inquiries be made into the results of the practice of compounding for rates. It has been found that through the provision of baths in houses, open spaces, etc., promoters of Garden Suburb schemes have been very prejudicially affected in the matter of compounding, and in order to compete with houses which do not possess these advantages, an uneconomical rent has to be charged.

Memorandum VII.

TRADE COMBINES.

The Association desires urgently to call attention of the very great hindrance to cottage building which has resulted from the formation of combines among the manufacturers and merchants of different classes of building materials. Even before the war this advance was so serious as to constitute a grave danger, and was, without doubt, one of the contributory reasons to the decline in cottage building before the war. The advance in wages has been adduced as the principal reason, but investigation goes to prove that the organization of "rings" or "combines" has had a far greater effect. Apart from the increase owing to war conditions, the average increase of prices over those obtaining, say, six years ago, is something like 20 per cent., while individual articles have been doubled in price. The matter has received very little public attention, because the effect of the prices was hardly discovered when the war came to divert attention. It would seem that legislation will be necessary to deal with this development in order to prevent the abuse of combination and the making of undue profits.

Memorandum VIII.

NECESSITY FOR A RESEARCH AND INQUIRY DEPARTMENT.

The Association would urge the great value of the establishment of a department charged with investigation into the present use of building materials and employment of alternative materials. Proposals are constantly being made which it is claimed will tend to reduce considerably both the cost of building and the time occupied in building, but in the absence of authoritative reports on these, nobody is at present prepared to make experiments. In regard to the use of other materials it may be observed that very great quantities of clinker are towed away and shot into the sea every year as the only means of disposing of it. Inquiries into the possibility of eliminating certain chemical contents might result in the production of useful material. The same body might inquire into proposals for standardization of fittings in order to secure economy of production while avoiding monotony of appearance.

Municipal Legislation in Madras.

OUR readers are aware that Government recently appointed a Committee to examine the Madras District Municipalities Bill. The Committee has completed its work and it is understood that the non-official members are, on the whole, satisfied with the main scheme of the Bill as drafted.

In regard to the constitution of Municipal Councils, the Bill provides for an extension of the elective element; a system of aldermen—*i.e.*, of co-opted councillors who would form about one-fourth of the council and hold their office for a longer term than ordinary Councillors—with the object of securing continuity in the administration; and a Commissioner with a non-official system on the Bombay model for the larger towns. The non-official members of the Committee disapprove of the scheme of aldermen and the Commissioner system. Both these questions involve important issues; and we have no doubt that public opinion will be consulted on them before the Bill is introduced.

The financial resources of councils are proposed to be increased. In addition to the taxes in the existing Act, the scales of which are raised, provision is made for a "terminal tax" which will of course be levied only in a very small number of municipalities. A sur-tax on income-tax may also be imposed in lieu of the profession tax, if councils so decide.

The Bill marks an advance on the existing Act in that it increases the powers of councils over their budgets and strengthens their control over establishments.

The Committee appears to have suggested that sections should be embodied in the Bill to enable councils to make education free and compulsory in their areas and levy a special cess for the purpose. We understand that the official members were not opposed to the suggestion, and trust that it will be adopted.

The sections relating to "Municipal trading" had the approval of the Committee. It is also stated that the portion of the Bill dealing with "corrupt practices" was not regarded as altogether necessary.

Besides these main principles, the existing Act has undergone revision in many respects, and it is stated that the Bill is framed in a liberal spirit and is likely to advance the cause of Local Self-Government.

We are also glad to see from the announcement in the *Madras Mail* that Government have decided to follow a progressive policy in matters relating to Local Self-Government. The elective strength of local bodies is proposed to be increased and it is understood that a Committee is to sit shortly to consider the question of withdrawing the restrictions imposed from time to time on the powers of local bodies. It is also stated that the system of non-official Presidents of Taluk Boards will be extended and that it is likely that the experiment of non-official Presidents of District Boards will be tried in a few districts. We trust that no time will be lost in initiating these very desirable reforms.

Officials and Village Panchayats.

IN his famous Resolution initiating measures of Local Self-Government in India, Lord Ripon observed :

"If it be said that the experiments hitherto made in this direction have not been encouraging, the Governor-General-in-Council must avow his belief that the principle has not as yet been in any general or satisfactory fashion fully and fairly tried. There is reason to fear that previous attempts at Local Self-Government have been too often overridden and practically crushed by direct, though well-meant, official interference." The force of these observations is illustrated in the following extract from the Administration Report, for 1916-17, of the President of the Gudur Taluk Board, a

member of the Indian Civil Service. Referring to the working of the two Village Panchayats in the Taluk, this officer states :

“During the year, Village Panchayats were formed at Griddalore in Rapur Taluk and at Mopur in Venkatagiri Division.

“The Panchayat at Griddalore was inaugurated by me on 20-12-16. It has held two meetings during the last six months. The only work which *appears to have been done* by the Panchayat is the repairing of the village temple—an object not expressly included in the scope of its constitution. *It is reported* that there are many complaints against the President and Members of the Panchayat who are accused of misappropriations and mismanagement. No proper accounts *appear to have been kept* though nearly Rs. 400 was raised and spent. The Panchayat was also vested with the control of irrigation, but the President *is said to have abused* his powers for his personal advantage. *If one can believe the report of the Revenue Inspector, it would appear* that the net result of the formation of the Panchayat has been to introduce a spirit of faction and discontent into a formerly peaceful village. Efforts will be made to improve the state of affairs. As regards the Mopur Panchayat, this is a self-formed institution which has been taken over by the Taluk Board and officially inaugurated by me on 15-10-16. So far *it appears* to have confined its activities to the infliction of a few petty fines for breach of its rules. It is too early yet to form an opinion as to its usefulness.” (*The Italics are ours.*)

Hasty and impatient condemnations like the above, based on one-sided representations of a Revenue Inspector and incorporated in official reports can only have one effect upon the working of these institutions. It is clear from the extract that the author of the report has not chosen to satisfy himself about the true state of affairs but is merely relying upon the Revenue Inspector's representations. We are told on the authority of the Revenue Inspector that the formation of the Panchayat has led to a spirit of faction and discontent in

a formerly peaceful village, and yet we find that the villagers have admittedly raised a sum of Rs. 400 by voluntary subscriptions for effecting repairs to the village temple. Competent observers and sympathetic officers have expressed their opinion that the formation of panchayats and co-operative societies has tended to bring about a feeling of harmonious co-operation in numerous villages where faction had previously prevailed.

We cannot also appreciate the force of the objection that "the only work which appears to have been done by the Panchayat is the repair of the village temple." The functions and duties of a village panchayat are, we believe, comprehensive enough to include the repairs of a temple common to the villagers. In their Resolution on the constitution of Village Panchayats, dated October 2nd, 1915, the Madras Government observe:

"The Panchayat's administrative powers need not be exactly the same in every village, but might vary according to local circumstances. *Their main object would be to promote common action for all approved common purposes....*"

We have no doubt that Government are very solicitous about the development of village panchayats, but any number of Government Resolutions cannot advance their development, if their formation, guidance and working are to depend upon officers like the author of the Report under consideration who fail to evince active sympathy in that direction.

Free and Compulsory Education.

[BY MR. P. A. SUBRAMANIA IYER, HEAD MASTER,
HINDU HIGH SCHOOL, TRIPPLICANE.]

IT would seem that after all we are within measurable distance of getting a Compulsory Education Bill sanctioned by the legislature for our province. The recent pronouncement on the subject by the Lieutenant Governor of the Punjab and the permission accorded to the Hon. Mr. Patel for the introduction of an Elementary Education Bill into the Bombay Legislative Council are indicative of the attitude of the Local Governments generally in this matter and it is not

unlikely that leave is granted to the Hon. Mr. A. S. Krishna Rau for introducing his Bill also into the Local Legislative Council at the next session—unless the Government, accepting the principle of the Bill, as it is reported they have, incorporate it in the District Municipalities Bill which is shortly to be introduced. One should have thought, however, notwithstanding Sir Harcourt Butler's opinion to the contrary, that this Bill should first be introduced into the Imperial Legislative Council and definite guarantees obtained from the Government of India as to the financial liabilities which they should be willing to undertake. For, after all, the education of the masses is quite an All-India problem in that its solution depends almost entirely on funds, and other conditions of elementary education too are such as to admit of no striking local variations. If, as rumour has it, the Government of India are not willing to shoulder any financial responsibility in the matter at present but have no objection, however, to the principle of compulsion being granted and local bodies taxing themselves for introducing compulsion within their areas, the only alternative left is the introduction of a Bill similar to those now before the public into every local Legislative Council. If it should be passed and placed in the Statute Book, two points will be gained, *viz.*, (*a*) power to introduce compulsion wherever possible, (*b*) power to levy an educational cess. Half a loaf is better than no bread, and this is particularly true of Indian politics.

Both the Madras and the Bombay Bills are alike in substance as well as in form—modest and unpretentious in their scope and permissive in their character. They are applicable to none but municipalities, and even then only to such of them as have previously been declared fit for compulsion by the Local Government. Boys alone are, for some time to come, expected to benefit by the operation of this law, and it is very doubtful indeed whether municipal bodies with their straitened resources and their many calls on them will be able to provide the facilities for the education of all the school-going children within their areas. Of course, provision

has been made for the levy of an educational cess and in order to make sure that 'Municipalities do not abuse their powers by any hasty or ill-considered action on their part,' the Bombay and the Madras Bills lay down that the motion for the levy of the cess should be carried by a majority of two-thirds and three-fourths respectively of the Municipal Councils concerned. The Madras Bill goes still further and prescribes that a resolution once passed should be confirmed after six months from the date of the resolution 'by a like majority and at a like meeting'.

One other difference that may be noted between the Madras and the Bombay Bills is that in the latter there is a clause expressly stating that the Act when passed will entail no financial responsibility on the local Government, while the former is silent on the point. In either case, it is clear that neither the local nor the Imperial Government will allow the Bill being introduced unless a stipulation to this effect is contained therein.

This then is the position. We are not much farther off than where the late Mr. Gokhale was in 1911. If anything, we have gone back in that we now ask for no financial guarantees from the Government of India. I am disposed to agree with those who consider that a Bill with no such guarantees must remain a dead letter even if passed. It has been accepted as a correct principle by all the civilized Governments of the world that the cost of mass education should not be a charge on the local revenues merely, but should be borne by the Imperial Exchequer as well. It was in pursuance of this principle that the Irish Education Act of 1892 which was also permissive in its character and on which our present Bills have been modelled provided for an annual Parliamentary grant of £21,000. Why the Indian Government alone should refuse to shoulder a similar responsibility is a mystery to us, but we may be sure that until such time that they come to feel it and adequately discharge it, the spread of mass education will, and cannot but be, retarded, and India will continue a dark spot on the Empire's 'scutcheon.'

The Bombay Local Self-Government Conference.

WE are glad that the movement inaugurated in Madras by the First Local and Municipal Conference was followed in Bombay at the instance of the Poona City Municipality. The first Bombay Local Self-Government Conference met on the 27th and 28th July in Kirloskar Theatre, Poona City. A large number of delegates from various Municipalities and District Boards attended the Conference. H. H. Lord Willingdon showed his sympathy for the movement by his presence and by a speech in which he declared that his Government were engaged in trying to work out "a comprehensive scheme of Local Self-Government which was to include all forms of Government, from Village Panchayats to District Boards."

The Hon'ble Dewan Bahadur Godbole, Chairman of the Reception Committee, opened the Conference with a speech in which he briefly set out the aims and objects of the Conference and he concluded by proposing the Hon'ble Mr. V. J. Patel as President.

Mr. Patel delivered his presidential address from which we reproduce the following extracts.

Presidential Address.

I should like at the outset to answer one preliminary objection raised by some people that it is too late in the day to have a conference discussing questions of local self-government when the whole country is busy agitating for Home Rule or Self-Government. My reply to those critics is this. In Great Britain and other self-governing countries there do exist associations of this kind with the object of watching over and protecting the rights, interests and privileges of local bodies. Whether the Central Government is our own or not, we are bound to have *local self-government* and it will always be necessary for local bodies to fight their battles against the Central Government.

It is now 67 years since Local Government was started in urban areas and 54 years since it was started in rural areas. Let us take stock of the progress made during this long period. There are 215 Taluqa Boards in the Presidency.

All these Boards without a single exception have a nominated majority and an ex-officio President. There are 26 District Boards. Till 1915 all these Boards had a nominated majority and an ex-officio President. During the course of the last 12 months some 16 or 17 of these Boards have been granted elected majority—not two-thirds but less—and very recently three out of the 26 Boards have been granted the privilege of having Non-official Presidents not elected, but nominated by Government.

Coming now to urban areas, there are at present 156 municipalities in the presidency. Till 1908-9 all of them without a single exception, were without an elective majority. This fact was pointedly brought to the attention of the Commissioners on Decentralization who, on a comparison of figures for the year 1906, observed in their report that Bombay was behind Madras, Bengal, Punjab, U. P. and the C. P., but added a foot-note that Bombay had recently given two-thirds elected majority to its District Municipalities. I am not in a position to say why, by whom and under what circumstances, the Commissioners were so informed. The truth is that out of the total of 156 Municipalities only 23 have been granted elective majority since the report of the Decentralization Commission. Out of the remaining, as many as 35 consist entirely of nominated members and the rest, partly elected and partly nominated members. None of these latter Municipalities has even a bare elected majority. Of the 35 Municipalities consisting of entirely nominated members, 20 are in Sind and 15 in the Presidency proper. The total number of Municipalities in Sind is 25. Government have so far thought fit to extend the franchise of election to only five of them. A great majority of the remaining 20 were established in the early fifties, i.e., as many as 60 years ago. Take, for instance, Ketty Bunder and Tatta. They were established in 1854. Larkhana, Rhori and Ghotki were established in 1855. Tando Mahomadxan, Manjhand and Tando-Alhayar were established in 1856, Hala in 1859, Nasarpur, Tando Adam and Umarnot in 1860, Kambar and Rato-Dero in 1862, Matiani in 1868 and Gharhi Yasin in 1870. It has never occurred to Government to grant the franchise of election to any of these Municipalities. It is said in season and out of season by officials that the people are backward. If after a trial of fifty or sixty years of Local Self-Government under the enlightened British rule, people have not shown any real public spirit, either the people are worthless or there is something rotten in the administration of the Presidency. What is the rate at which Local Self-Government has progressed during this long period? There is not a single District Board out of the total of 26 or a single Taluqa Board out of the total of 215 that has been found fit to exercise the right of electing its own President. There is not a single Taluqa Board out of the total of 215 deserving elective majority. There are a number of Municipalities in the Presidency constituted since half a century and over and yet not found to deserve the franchise of election. Barring the City Municipalities, which number about 23, there is not a single District Municipality in the presidency that is found fit to elect its own President or deserving of elective majority. We are all grateful to His Excellency Lord Willingdon for his candid confession regarding the attitude of the Bombay Government on this question in the past

and for his declaration that the angle of vision has now changed. But let me tell His Excellency on behalf of you all that what we want and want immediately is not a concession here and a concession there, but 'a pull up altogether', a complete change of policy and the grant of Local Self-Government without any reservations. We had had enough of trials and experiments and stages and we refuse to be trifled with any longer.

I now proceed to refer to some of the points on which reform is needed. I use the words 'some' advisedly as it is not possible within the short space of time at my disposal to deal adequately with all the points on which I consider reform is needed.

The first and foremost point in which reform must come immediately is as regards the constitution.

Constitution.

(a) As a general rule, Local bodies should be wholly elected.

It is contended that Government must reserve in its hands the power of nominating a certain percentage of members in order to provide for the interests of the Mahomedan community. I am as anxious as Government itself for the protection of the interests of this great community; but I maintain that the reservation of power of nomination in the hands of Government is not at all necessary for that end. Where the population is exclusively or largely Hindu or Mahomedan, the question does not arise. The difficulty occurs where the population is mixed consisting of Hindus and Mahomedans; for such areas I recommend that seats should be reserved for the community that has a minority and the electorate which should be mixed must elect persons belonging to that community to those seats. Under such an arrangement, Government need not reserve to itself the power of appointing representatives of Mahomedans. This principle of reservation of seats for Mahomedan candidates in a mixed electorate in proportion to their population has been put into effect, as far as my knowledge goes, in certain wards in the city of Ahmedabad.

But it might be said that it is necessary to provide for the interests of other minorities or it may be necessary to nominate persons who for diverse reasons would not seek election but who would render very useful service on the Board. Even if this argument were sound I venture to think that this problem is capable of solution by providing for an election of a portion of a local body by the body itself just as aldermen are elected under the British system.

But it might be said that it may be necessary to nominate experts sometimes. I have not the slightest desire to underestimate the value of expert knowledge. Experts are good for the purpose of advice. But are they equally good for the purposes of deliberation and decision? Besides their advice is not necessary in the everyday working of local bodies, and the objection would be met if local bodies were empowered to co-opt outsiders, whenever necessary.

(b) As a general rule, local bodies should have elected Non-official Presidents.

Lord Ripon's Government expressly laid down that District officers should, usually, not take part in the work of local bodies which should, as a rule, have an elected Non-official President.

Lord Morley refers in his despatch of the 28th November 1908 to this resolution in terms of approving eloquence in these words :—" I do not know where to look for a better expression of views that shall govern our policy under this important head." He further says " the partial unsucccess of Local Self-Government is due to the fact that the official control over local bodies is exercised from within." In other words, he maintains that the President of local bodies should be elected by themselves.

Finance.

You might give the best constitution in the world to local bodies and yet Local Self-Government will never be a success unless their financial resources are improved. Compare the number and magnitude of obligatory and discretionary duties imposed on them by the statutes with their extremely meagre resources. If there is any question touching Local Self-Government on which both officials and non-officials are agreed, it is this, viz., that the resources of local bodies are pitifully unequal to a proper performance of functions which have been entrusted to them. The whole fate of Local Self-Government depends on the satisfactory solution of this question and yet curiously enough no serious attempt has so far been made to deal with it. The Royal Commission on Decentralization treated this subject in a most perfunctory manner. The recent resolution of the Government of India on Local Self-Government, while admitting that the funds at the disposal of local bodies were scanty, did not attempt to clear the situation in any satisfactory manner. Suggestions have from time to time been made in the Provincial and Imperial Legislative Councils for the improvement of the financial conditions of local bodies but without any tangible result. In this Presidency, Government appointed in 1915 a Committee to consider the whole question of Local Self-Government and that Committee made certain definite recommendations for the improvement of resources of local bodies. Government, however, in their resolution of May 1916 entirely disagreed with those recommendations and stated that ' they were based, in the main, on wrong premises.' I have often heard it said by several officials that after all if local bodies wanted more money they should tax themselves more and get it. It is pertinent in this connection to enquire (1) whether there is any margin for any additional taxation and if so, how much ; (2) what is the total incidence of Imperial and Local taxation ; and (3) how far the proceeds of the taxation are equitably distributed between the central Government and local bodies. Those who advocate that Local Bodies should tax themselves more to provide the necessary funds do so on the ground that the incidence of Local taxation is much less in this country than in Western countries. But they forget the fact that taking Imperial and Local burdens together people of this country relatively to their resources contribute

no less in taxation than the people of Western countries. Whether you call taxation, Local or Imperial, the whole burden is to be borne by the people. The fact is that the Central Government in this country retains a much greater proportion of total taxation in its own hands than the Central Governments in Western countries. It is not that the people in this country pay less proportionately to their income for Imperial and Local purposes but that what they pay is distributed so unequally between Imperial and Local services. One reason for this unequal distribution lies in the fact that what is regarded in the Western countries as Local sources of revenue is regarded in this country as Imperial. In England, the bulk of the contribution that comes from land goes to local bodies, the Central Government receiving only a very small amount of land-tax. In France, more than half the contribution from land goes to local bodies. In this country sixteen-seventeenth goes to the Central Government and only one-seventeenth to local bodies.

When I labour this point at some length I should not be understood to suggest that I am opposed to all further local taxation. I recognise that circumstances beyond the control of the people have brought about a state of things in the administration of this country which calls for some additional local taxation. At the same time it must be recognised that grants-in-aid are not made with sufficient regularity, that they have not kept pace with the growing Provincial revenues and that their uncertain character prevents local bodies from embarking on any schemes which they themselves cannot finance and that the distribution of the Imperial or Provincial grants is uneven and made among local bodies not in accordance with their respective real needs or settled programme but on the basis of individual recommendations of District officers who sometimes push on such schemes as meet with their approval and set back those which local bodies desire to introduce. The great difficulty of local bodies is that they do not know what they will get from Government. Government have recognised that it is their duty to help local bodies. But the exact extent of that responsibility is nowhere defined or settled. There is, therefore, the uncertainty of how much you are going to get. In some years you can get a large sum, in others small. If you have an uncertain income you cannot have a reasonable programme looking ahead for a number of years. What is, therefore, wanted is that Government should make up their mind and decide once for all as to what their share of the expenditure of local bodies shall be. In thus fixing their share the nature of the service on which a local body incurs expenditure has got to be taken into account. Services such as that of education can never be considered purely local. They are what they call in England 'national services' in which the nation at large is more interested than the particular locality concerned. It is well-known that even from the time of the Educational despatch of 1854 it has been recognised to be the paramount duty of the State to do all that is possible for the diffusion of knowledge as widely as possible. In the report of a Committee for local taxation appointed in England they came to the conclusion that 'in general the funds to pay for national services should be raised according to ability to pay and taxes are raised more in accordance with this principle than rates.' Hence the

direction is made that the ideal arrangement from the point of view of equity of contribution would be that the whole cost should be borne by the State. But this would necessarily involve the transfer to the State of the responsibility for administration and such a course was felt to be impracticable. The conclusion reached is that a further contribution should be made from national funds towards the expenditure, on these services. In other words, the State and local body should share the expenditure, the State contributing a larger share than the local body. This is quite in accord with the proposal of the late Mr. Gokhale that the State should contribute two-thirds and the local body one-third of the expenditure on primary education. The Local Boards Committee took exactly the same view. At page 29 of their report they say 'in regard to primary education in particular, we recommend that the Government may be pleased to accept the principle that two-thirds of the expenditure by District Councils may be met from Provincial balance whatever may be the method approved by Government for their allotment. And we beg to point out that this proportion of two-thirds has in fact been contributed in recent years'. I strongly hold the view that the share of Government on this head of expenditure should, for reasons given by me in my minute of dissent, be three-fourths and not two-thirds as recommended by the Committee.

With regard to expenditure of Local Bodies on other services, grants by Government must also bear a direct and definite relation to the expenditure. The best interests of Local Self-Government demand that this question should no longer be delayed. It only stands to reason that the rights and responsibilities of Government and local bodies in this important matter should be clearly defined and placed on a satisfactory basis.

Whilst on this subject of finance I should like to make a passing reference to two points. (1) Local Bodies here should be encouraged to follow the example of enterprising local bodies in Europe to adopt a cautious policy of development by means of loans. (2) Local bodies should by law be empowered to grant or refuse licenses to companies in such matters as gas or electricity.

As regards the first, the present Local Authorities Loans Act and rules thereunder require to be overhauled. The floating of a loan in the public market without a guarantee from Government who examine the accounts and ascertain the ways and means of the local authority before sanctioning and application, can hardly be a successful achievement in the case of a local body. There are cases of Railway projects undertaken by private companies in which Government have guaranteed a certain rate of interest to investors. There is thus a greater necessity for such a moral and fiscal support from Government when a local body tries to raise a loan in open market for public improvement. The next point is that the rate of interest on loans advanced by Government to local authorities should not be prohibitively high.

The second subject relates to works of local utility. The power of sanctioning or vetoing licenses for gas works or electricity should vest in the local authority and not in Local Government.

Local Government Board.

I consider it essential to the development of healthy public spirit in mofussal local bodies and for the success of local self-government that these bodies should be absolutely independent of the control of District officers. It is not at all conducive to the success of local self-government to entrust the control to the very gentlemen who will be called upon to transfer powers, they have so long enjoyed, to representatives of the people. There is no doubt that at the outset of their new career local bodies will have a difficult task before them. For want of practical insight into the details of administrative work, some of them are likely to stumble now and then. If therefore the controlling authorities are District officers there is a chance of some of them magnifying the errors of local bodies or of those bodies misconstruing the attitude and actions of those officers. I, therefore, press on the attention of Government and legislature the desirability of forming a Local Government Board to exercise all the powers of control over local bodies. It is difficult to say what exactly the constitution of such a Board should be. One can only make suggestions at this stage. The member in charge of the local government portfolio as chairman and the members of the Legislative Council elected by local bodies in the presidency as members may form such a board; or the member in charge as chairman with a certain number of members returned by non-official Presidents of local bodies may be another way of forming such a board. Once the principle is accepted it will not be difficult to settle the details. It might be said that there should be some intermediary between the Local Government Board and the local bodies. If this argument is considered sound we might have divisional boards with each divisional Commissioner as chairman and the members elected to the Council by the local bodies of that division as members.

Local Government Service.

One has to admit that the conditions of service under local bodies are far from satisfactory and therefore do not attract good people. The difficulties of these employees under present system are real and many. It presupposes that they will continue to be servants of the boards under whom they have accepted service as long as they are fit to work. In many cases financial considerations do not allow the boards to pay them according to their merits and qualifications.

In my opinion there should be a self contained local Government service in its two branches (1) General administration and (2) Professional. Each should be divided into two parts (a) upper branch (b) lower branch. The upper branch should comprise appointments under local boards and municipalities carrying salary of Rs. 50 and above, and lower branch should contain all lower appointments except inferior servants. The administrative service should have a goal to a Chief Officership while the professional should have a goal towards the post of Chief Engineer or Health Officer. The service of the upper branch should be divisional; while that of lower branch should be confined to local bodies of the district. The control of the upper branch should

vest in the Local Self-government Board. If Government is agreeable, it will not at all be a difficult matter to determine the extent of that control in a manner compatible with the authority and independence of local bodies. The control of the lower branch should vest in the President or controlling Committee of the local body concerned. Each local body should contribute towards the leave and pension contribution of its staff to the common local Government service and officers and servants of the upper branch should be interchangeable, subject to certain service regulations to be drawn conjointly with the approval of the Local Government Board having a substantial majority of members elected by local bodies. A qualified examination should be prescribed for recruits to the upper branch and conducted under the supervision of the Local Government Board.

Should Taluqa Boards be abolished?

This question is at present under the consideration of Government. I am not sure who moved it. I believe it was Mr. Hatch, Collector of Poona, who suggested the abolition of Taluqa Boards in his evidence before the Local Boards Committee. I trust Government will decide this question not on grounds of economy but on grounds of interest of local self-government. These boards are in existence for the last 33 years, and no case has been made out for their abolition; on the contrary, the Decentralization Commission has recommended their retention. The Local Boards Committee has also expressed very strongly against the proposed change. The late Mr. Gokhale from his seat in the Imperial Legislative Council in 1912 expressed himself as follows:—"One essential condition of the success of local self-government is that those who take part in it should possess a personal knowledge of the area under their management or at any rate should be able to acquire that knowledge without much difficulty. This condition will well be fulfilled in regard to villages and sub-districts. It is difficult for it to be fulfilled in regard to district boards as our districts are so large. Therefore, I think our real local self-government should start with villages and stop with sub-districts. The district boards may exercise only general supervising and co-ordinating functions and then if the Government choose the other functions of advisory character, of which I spoke the other day might gradually be transferred to them." Moreover, when the organization of Village Panchayats is under consideration, it will scarcely be wise to do away with the Taluqa Boards as they are the very bodies who will be most competent to supervise and control the work of Panchayats. This naturally leads me to the consideration of devolution of powers so far as local bodies are concerned.

Decentralization and Devolution.

As you all know the late Mr. Gokhale brought a resolution in the Imperial Legislative Council in 1912 recommending the institution of district advisory councils with a view to secure greater association of the people of this country with the district administration. In the course of the discussion he pointed out "that those who initiated the recent measures of reform (Morley-Minto Reforms) also had in mind associating the people with the administration

down to the bottom: in what form this was to be done they left to the Decentralization Commission to recommend". In opposing this resolution Sir Reginald Craddock remarked as follows;—"The question of Advisory Councils of all kinds was in air, and the District Councils to which I referred in that note were not the District Councils of Mr. Gokhale's scheme, but these District Boards that we have already established and of which the foundations have been laid. These were to be the sources from which eventually, if ever, Advisory Councils were to spring; but I contemplated rather that those boards should themselves become not the Advisory Councils Mr. Gokhale contemplates, but the agency for doing things themselves and not for advising the Collector how they should be done, and that is what I still think will be the future development, not by giving a number of advisers very often irresponsible, to executive officers like the Collector, but as the time goes on to divest himself of various functions and hand them over to responsible bodies like the Municipalities and District Councils. That is the line on which as far as my humble opinion goes, affairs will develop."

The Government is never tired of telling us to advance step by step instead of by leaps and bounds. We are assured that the policy of the Government is a steady broadening of its own basis. Where is the evidence of that policy? It is over five years since the above declaration of faith was made in the Imperial Council, and we see no signs of a forward policy.

Speaking for myself I say it does not matter whether we have separate District Advisory Councils as advocated by Mr. Gokhale or the existing district boards are turned into such Councils. Districts are, in my humble opinion, too large as areas for the purpose of local self-government and I should like to see some of the powers of district boards transferred to Taluqa boards. District Boards would thus be relieved of some of their functions and then by way of decentralization, some of the administrative powers and duties of district officers might, with advantage, be transferred to those boards. In this way District Boards might be made more useful than they are at present not only in the sphere of Local Self-Government but also as adjunct to the general administration of the country. It is only by doing this that Government will be able to adjust itself to the growing complexities of the district administration. The sooner the principle of decentralization of powers and duties from the Collector to the District Boards, from the District Boards to Taluqa Boards and village Panchayats is accepted by Government, the better

The following Resolutions were passed by the Conference:

Constitution of Local Bodies.

Rao Sahib Hiralal Desai (Ahmedabad) moved the first resolution which ran as follows:—

This Conference is of opinion that all local bodies should be wholly elective, with a right to elect their own presidents, subject to the following safeguards:—

(a) That there should be communal representation in the case of the Mahomedan community only which should have the privilege of returning members to local bodies on the basis of population, but by mixed electorates.

(b) That with a view to provide for other interests each local body should frame its rules of election so as to reserve a specified number of seats, which shall not exceed three, for the representatives of such interests. Such representatives shall be elected by the other members returned by the general body of voters.

Free and Compulsory Education.

Rao Bahadur G. K. Chitale (Ahmednagar) next moved :—

(a) This conference urges upon Government the desirability of empowering local bodies to introduce free and compulsory education in areas within their jurisdiction.

(b) It is further of opinion that the expenditure on primary education should be borne by the Government and the local bodies in the proportion of $\frac{3}{4}$ and $\frac{1}{4}$ respectively.

Municipal Commissioner's Powers.

Rao Bahadur Ramanbhai Mahipatram (Ahmedabad) moved the next resolution which expressed the opinion of the Conference that Chapter 13-A referring to the municipal commissioner, his appointment and powers be deleted from the Bombay District Municipal Act, 1901.

Suspension of Municipalities.

Mr. Joseph Benjamin (Ahmedabad) then moved :—

“ This Conference is of opinion that no local body should be suspended by Government without a public inquiry and without affording such a body the fullest opportunity to explain itself in regard to the alleged grounds of suspension and without calling upon the constituency thereof to re-elect its representatives.”

Establishment of Central Board Proposed.

Rao Bahadur Ramanbhai Mahipatram moved :—

In the opinion of this Conference, the time has come for the establishment of a Central Local Self-Government Board which shall consist of the member of the Executive Council in charge of the local self-government portfolio as an ex-officio President thereof, and of the representatives of the public and of divisional boards on similar lines, which should, as possible be constituted on linguistic basis. It is further of opinion that all powers of control and supervision over local bodies should henceforth be exercised by such Central and Divisional Boards.

Sale of Liquor.

The Hon. Mr. Garud moved the following resolution :—

This Conference is of opinion that local bodies should, in addition to the powers they now possess, be conceded the power to determine the number and location of shops for the sale of intoxicating drugs and drinks within their limits.

Other Resolutions.

The following are the other resolutions passed :—

(a) This Conference is of opinion that the Government should take early steps to introduce the system of Village Panchayats throughout the Presidency and should entrust to such Panchayats all work relating to village sanitation and improvement.

(b) That a fixed proportion of the land-cess raised in each village should be placed at the disposal of the Village Panchayat or the Panchayat should be empowered to levy an additional cess to be devoted to such purposes of the village as it may think proper.

(c) This Conference is of opinion that in the interests of local bodies and as a step to secure the co-operation thereof it is necessary to organise a separate and graded local self-government service of all the principal officers of at least the City Municipalities and the District Local Boards.

(d) This Conference is of opinion that in view of the large measures of public utility, health, sanitation or education, which the local bodies are required to undertake a fixed share in some suitable and progressive heads of Provincial revenue should be permanently assigned to such bodies or that the Government should bear a proportion to the expenditure incurred by them, in addition to the occasional special grants-in-aid.

This Conference is of opinion that it is necessary for the better and more effective administration of Local Bodies, to establish a Central School for the training of the subordinate staff of such bodies, which should contribute towards its maintenance in proportion to their income.

A resolution, proposed from the Chair and unanimously carried, urged that the Government should now amend the Bombay Medical Registration Act of 1912 so as to enable the Local Bodies to open and maintain Ayurvedic or Unani dispensaries as they could before the passing of the Act.

The Hon'ble Mr. Garud (Dhulia) moved —

“ That this Conference views with alarm the proposal to abolish the Taluka Local Boards and places on record its emphatic opinion that their retention, even after the establishment of the Village Panchayats, is necessary in the best interest of local self-government in the Presidency.”

The next session of the Conference will be held at Ahmedabad.

Diagonal Streets.

WITH the development of Town-Planning and increase of fast motor traffic, the importance and utility of diagonal streets is beginning to be recognised. Designers and town planners emphasise the advantage gained

by the shorter distance, in addition to the artistic treatment such triangular corners are susceptible of. Owners of private property, however, oppose such designs as they result in so much waste of land, and unsymmetrical division of properties.

The principle of diagonal streets, says *The American City*, is based on the idea of relieving traffic congestion in modern cities. In order to solve the problem of fast traffic, it is necessary, first, to provide thoroughfares for the exclusive use of moving traffic, and second, to provide adequate parking space for standing vehicles. If the latter was not provided, then the width of an ordinary street available for moving traffic would be reduced by 50 per cent. owing to cars standing or stopping at the curb. If the expedient of ordering standing motor cars off the streets were adopted, then the merchants doing trade in the streets, would lose and would be slowly but certainly deprived of their trade, for a car owner who is obliged to park his car some distance away from the congested street will soon try to make his purchases in a neighbourhood where such inconveniences do not exist.

The function of a properly designed street is to serve as a thoroughfare and to safeguard the interests of abutting property owners. Fast motor traffic has made the existing streets too small to answer both purposes, and we agree with the writer in *The American City* that the increased area required for the new form of transportation is best obtained in the case of many streets not so much by widening them, which is only a palliative, as by a scheme of diagonal streets intersecting them.

Road Development in Quebec.

IN 1911, the Quebec Government determined to build throughout the province a system of roads that would not only tap the vast resources of the country but would enable produce to be transported at the lowest cost, and in addition

add to the amenities of country life. In order to carry out this scheme, the Government promised to contribute half the expenditure if the rural municipalities would do their share. The result of the Co-operation between the provincial and local Governments is thus described in the *Canadian Municipal Journal*:

The appropriation to carry out this great work was \$ 15,000,000, spread over a number of years. This sum has now been spent together with an additional \$1,537,806 up to the end of 1916. For this expenditure the provincial authorities have control of 1,487 miles of permanent roads, including a splendid system of five state highways of over 300 miles, connecting the chief centres. Nor is this all. Many miles of provincial roads running through the smaller urban municipalities have been changed from earth to macadam, and made permanent, the municipalities contributing at the rate of \$1,000 per mile ; so altogether one is not far wrong in saying that the Province of Quebec has now over 2,000 miles of new roads—a remarkable record when it is considered that at first the people looked askance at the new order of things, and would not help. But education by placards (see photo) and circulars gradually convinced the people of the splendid opportunities offered them to improve their roads. To-day, in the words of Deputy Minister Michaud, “a new spirit has been created that will no longer suffer trails to be called good roads.”

In addition to \$5,000,000 extra being voted by the last session of the legislature for new roads, an Act was passed giving the minister special powers for the proper maintenance of the roads built at so much sacrifice of energy, meaning that the work of the past six years will not be lost.

This expenditure of \$20,000,000 on the building of roads will prove one of the best and soundest investments that the Government of Quebec ever went into, and one that will be repaid many times over not only by direct returns in

cheapening transportation and in the large increase in tourist traffic from other provinces and the United States, but as foundations upon which new industries will be built from the vast mineral and forest resources of the country. And better still, the building of the roads has engendered a spirit of co-operation between the people and the Government that will go far in both the material and social building up of the province.

Provincial Sanitary Administration Reports (1916).

[Burma, Punjab, Bengal, Assam, Bihar and Orissa.]

ONE noticeable feature of the several reports of the Provincial areas under review is that the year 1916 has been a comparatively healthy one. The climatic conditions have been good on the whole, although in the Punjab where, on account of the heavy and prolonged monsoons, mortality from Malaria was on the increase. In Assam, the Sanitary Commissioner reports that the adverse meteorological conditions which prevailed did not seriously effect public health. In Bengal the rainfall was generally well distributed and ample in amount, yielding a bumper rice crop; and with the resulting favourable conditions there was an increase in population; while in Bihar and Orissa excessive rainfall and floods caused epidemics of Cholera in the northern parts of the administrative area.

There was a fall in the birth-rates in Burma, Assam, Bihar and Orissa and a rise in those for the Punjab and Bengal. The highest birth-rate of 45·6 per mille was recorded in the Punjab and the lowest 30·52 per mille in Assam. Except in Bihar and Orissa, the general provincial death-rates were lower than in the previous year. The fall in death-rates was remarkably noticeable in the Punjab—attributed to absence of Plague—and in Bengal, to lowest mortality from fever and cholera ever recorded since 1912—the year when the Presidency was created.

Infantile mortality is high as usual in all the Provinces. In Burma, some amount of good work was done by Societies for the Prevention of Infantile mortality and the policy adopted by the Moulmein Society of following up the history of each infant attended at birth throughout each month up to the end of the first year is much commended.

There is a general complaint that registration of vital statistics is very defective. In Assam the appointment of Sanitary Inspectors of the Sub-Assistant Surgeon Class as Registrars of Births and Deaths in urban areas with compulsory registration has contributed to more accurate reports. It is hoped that this wholesome rule of making qualified medical men responsible for the accurate registration of vital statistics will be extended to all the Provinces and in all parts of the Provinces.

Plague, Cholera, Small-pox, Malaria and Kalā azar and Dysentery and Diarrhoea are the diseases that are dealt with as important fatal diseases in the several administrative areas. Plague was prevalent in an epidemic form in Burma (Rangoon suffered most with the highest death-rate of 6·17 per mille); and the Punjab was noted by the absence of Plague; whereas in Bihar and Orissa, it did not spread beyond the epidemic areas. Cholera accounts for 70,836 deaths in Bengal which is the minimum on record and we are told that there were no virulent epidemics. The Punjab again was immune from cholera, as also Assam. Bihar and Orissa suffered from mild epidemics in the northern parts of the districts lying along the frontier of Nepal; while in Burma the epidemic which started in 1915 lingered on for the first half of 1916 and accounted for 1673 deaths.

As usual it has been found difficult to discriminate deaths due to fevers of malarial origin from those due to other febrile diseases or ailments. Malaria was widely spread in the Punjab, the death-rate from this cause alone being 19·44 per mille in 1916 against 14·73 in 1915. There was a fall in Burma in the ratio of deaths from fevers (from 8·55 to 7·88

per mille). Strenuous efforts are being made by the Governments of Burma and Bengal to deal with this scourge by adopting several anti-malarial measures, including the free distribution of quinine by travelling dispensaries and the improvement of the sanitary conditions of the towns and villages. The annual report of the Sanitary Administration of Bengal is specially noteworthy in the information given therein regarding the beginning made in 3 out of 4 schemes designed by Dr. Bentley as experiments in anti-malarial measures. These are shortly described in the report and we make no apology for quoting them :

“ These schemes are to be carried out in areas with varying physical conditions, so that it may be possible to predicate what measures are likely to be successful for the prevention and mitigation of malaria in different parts of the presidency. Two of the experiments are to be made in the deltaic tracts, viz., one in the rural area in the Burdwan district and the other in the town of Jangipur in the Murshidabad district. The Sanitary Commissioner describes these schemes as follows :—

“ In the Burdwan and Jangipur schemes the idea is to take in the silt-laden waters of the Damodar and Bhagirathi rivers, respectively, during the floods so as to reduce what is called areas of mosquito-breeding edges by converting a large number of small pools into a big sheet of water, and at the same time to enrich the soil by allowing the silt to deposit on agricultural land. By constructing a series of regulators and sluices, it is arranged to control the flood water, so as to allow only a sufficient quantity that may benefit the crops and not drown them ; and at the same time only the silt and not the sand may be deposited on agricultural land—a special method technically known as ‘ *Bonificazione*.’ By this method it is also contrived to flush out old insanitary tanks and ditches, and in course of time to silt them up.

“ The basis of the third experiment is a system of subsoil drainage, which has been successful in Panama and the Federated Malay States, but has not been attempted in Bengal in connection with anti-malarial operations. This experiment is to be made on a colliery situated at Singaram in the Burdwan district, in the rolling

upland country which covers a large area in West Bengal; and a fourth will be carried out at the Meenglass tea estate in the submontane region in the district of Jalpaiguri. In these latter tracts the chief carriers of malaria are believed to be stream-breeding mosquitoes which differ in their habits from the common carriers of malaria met within deltaic areas. The two schemes have been specially drawn up with the object of ascertaining the best method of dealing with these mosquitoes and determining the minimum area round a village that must be controlled in order to bring about a reduction of malaria.

"At Meenglass the hill streams, in which a dangerous species of anopheline mosquito breeds, will be put underground, the water being carried off in subsoil drains when the flow becomes sluggish, while the storm flow is allowed to pass over them in the usual stream channels. The Singaram scheme consists of two parts, viz., (1) a thorough surface drainage of the area to be experimented on, and (2) the periodical flushing of a small river in which malaria-carrying mosquitoes of a vicious character breed. The object of the first part is to drain away pools and depressions in which malaria-carrying mosquitoes breed: that of the second is to substitute a series of flushes in the river instead of a sluggish flow, for it has been ascertained that mosquitoes breed along its edge when the flow is gentle, but when the river is in flood their eggs and larvæ are carried away. It is therefore proposed to construct a weir with sluices so arranged that, when the sluices are closed, a head of water will be accumulated behind the weir, and this will be periodically discharged so as to flush the bed of the rivulet. It is hoped that three of the schemes will be completed during the current year; and the Governor in Council looks forward to the results of the experiments with much interest.

"*Stegomyia* Enquiry was proposed to be undertaken in Bengal with a view to establish homogeneous sanitary control throughout the port of Calcutta, with special reference to the question of taking measures to prevent the introduction of yellow fever through the medium of the *Stegomyia* mosquito in consequence of the opening of the Panama Canal."

Small-pox is another disease that is a constant source of menace to public health in the several administrative areas; and it is unfortunate that vaccination,—the well recognised

prophylactic against small-pox—is not yet quite popular with the larger public. In the Sanitary report for Assam it is said that “the increased efficiency with which the provisions of the Vaccination Act are administered produced a substantial reduction in the prevalence of this disease in urban areas.”

Kalaazar is one of the infectious diseases that the Government of Assam are feeling anxious about. The anti-Kalaazar operations were maintained and 4 travelling dispensaries were at work. There was a serious outbreak of Kalaazar in a tea garden in Goalghat sub-division of the Sibsagar district. In 9 months there were 68 cases of which 23 had proved fatal. “Measures providing for the segregation of infected and suspected families, for the destruction of infected houses, and for the reconstruction of new lines on an uninfected site have been taken and on the advice of the Sanitary authorities, the Chief Commissioner applied for, and has recently been granted, powers under the Epidemic Diseases Act (III of 1897) to enable him to deal adequately with the situation. The detailed measures to be adopted are now under consideration. The Chief Commissioner trusts that, if the measures of segregation, removal and prevention are effectively carried out, there will be no reason to fear an extension of the disease to the labour forces of other tea gardens a contingency of which the disastrous potentialities for the tea industry are obvious. The Chief Commissioner is assured that the garden authorities are fully alive to these possibilities and that they are taking all necessary steps to give effect to the preventive measures which experience has shown to be required.”

The existing war conditions have necessitated curtailing expenditure in almost every direction, and the unavoidable economy necessitated thereby is keenly felt by the Sanitary administration. Still several useful works such as Water works and Drainage schemes were completed or have been undertaken in several places.

Sanitary Officers of all the administrative areas are commended by their respective Governments for the efficient management of their departments under their control. In Bengal there has been some progress in the appointment of Sanitary Officers in municipalities and such appointments are now a statutory obligation.

Sanitation in Srinagar.*

[BY PANDIT ANAND KOUL, PRESIDENT, SRINAGAR
MUNICIPALITY.]

KASHMIR has been described by many writers of both prose and poetry as an Elysium on Earth, an Emerald set in Pearls, a land unrivalled in beauty, a dream of loveliness and what not. Urfi, a Persian poet, in dwelling on the salubriousness and excellence of its climate fancies that even a roasted fowl if brought to it would fly up with its plumage re-grown. A few years ago an enthusiastic European visitor wrote to a friend of his that a person not satisfied with this beautiful country was unworthy of going to Heaven as that could be no better.

All this praise of Kashmir, leaving some margin for poetical imaginations, is right enough but of Kashmir *minus* Srinagar, its capital. Though the name of Srinagar implies "the city of the goddess of wealth", it presents a poor look and reminds one of a town mentioned in the *Arabian Nights*—the people blind to Nature's bounty in abundance outside the town, looking a wretched lot, begrimed with dirt, some yawning idly, some walking lazily and some sleeping. Here and there a man might be seen squatting at ease at the window sill of his house with a large turban and a shawl flung round his shoulders, with rays of aristocracy beaming forth from his eyes, having a pull at his *hukka* or sipping a cup of tea or sniffing a pinch of snuff, and, with all that, feasting his eyes

* A lecture delivered at a public meeting under the auspices of the Society for Promoting Scientific Knowledge at Srinagar on 7th July 1917, under the presidency of Major-General Rai Bahadur Diwan Bishen Das, C. I. E., the Home Minister of the Kashmir State

with the sight of filth and squalor just below his window. Nowhere are Cowper's words "God made the country and man made the town" so fully illustrated as in this country, for in the city we have polluted air which gives rise to manifold diseases, whereas beyond its limits is obtainable the most bracing and invigorating air available on the face of the earth. This city up to lately was the hot-bed of pestilences. Mrs. Parbury in her beautiful book on Kashmir says—

"Just as the scenery and charm of Kashmir is unequaled, so the streets and by-ways of Srinagar are unrivalled for smells. Oh those smells! They were so overpowering that I believe one could both hear and see them. There is no Medical Officer of Health with unlimited powers to condemn property in this city of smells. If there were such a being, he would condemn every house right away, then all the owners of the said houses would rise up in a body and condemn him and he would be no more".

Mrs. Parbury wrote this 15 years ago and since then Srinagar has seen many a sanitary triumph. Great progress in sanitation is being perseveringly made year after year. We have a very energetic and zealous Medical Officer of Health who is waging war heroically against insanitation and is not at all deterred from his purpose by the fear of the lady's awful prediction. Occasionally matters do come to such a head that the fulfilment of her foretelling seems quite imminent. One instance I may mention here. In the cholera epidemic of 1914, he and I were one day going round in the city. At Maharaj Ranbir Ganj, an Assistant Surgeon on cholera duty met us and reported that he had gone to disinfect a boat in which a death from cholera had occurred but the owner of the boat would not allow him to do it. We told him that we would go with him and persuade the owner of the boat to allow it to be disinfected so that the disease might not spread. We went and tried our best to persuade the boatmen but to no avail. In the meantime thousands of people assembled on both banks of the river to witness the sight. An opera-house could not attract a denser crowd. Our men advanced to

sprinkle phenyle on the boat and thereupon a number of boatmen and boatwomen shrilled and yelled and furiously rushed towards us with poles and paddles and some began to pelt us with stones.

The Health Officer and I now trotted direct to our office glancing at each other sadly and silently all the way. In office we began to discuss whether the incident should be reported to the higher authorities or not. I confessed to him that I would feel ashamed to go and report that we, the generals of the army which is armed with the formidable weapons of brooms and baskets, were defeated ignominiously by such cowards as the *hanjis* and their wretched women.

While we were still thus wavering, the boatmen and their women were not keeping quiet. They ran speedily to the Shergarhi sobbing, shrieking, beating their breasts, crying bitterly and swearing that we were indeed the greatest fiends on the face of the earth as we were going to kill them by squirting poisonous drugs into their boat. They screeched and screamed aloud and rang the whole palace with their loud noise. His Highness the Maharaja on hearing this hubhub made enquiries and then we had, in order to save our skin, to report the whole matter to the higher authorities and with their permission the case was challenged to the Judicial Court where the culprits were convicted and duly punished. The peon, whose skull had been fractured, recovered after remaining in hospital for about two months and he was granted a reward by the Durbar as a mark of appreciation of doing his duty unflinchingly under trying circumstances.

To return to my subject ; I was saying that great advancement was being made in sanitation in Srinagar. The proof of it, if proof is at all required, is that considerable immunity from cholera and other epidemic diseases has been afforded. Twenty thousand people perished in the two cholera epidemics of 1888 and 1892 while in the last two cholera epidemics of 1914 and 1915 only one thousand and seventy-eight lives were lost. Another great triumph of modern science in

Kashmir has been vaccination. A case of small-pox is now a rare occurrence while formerly this fell disease wrought great havoc and caused terrible infantile mortality, so much so that a mother while being congratulated on being blessed with a baby would, with the shadow of a great fear in her heart, reply *avah yelih Shital bud traves*, that is, the congratulations should come after the child survived small-pox. Vaccination has happily banished these apprehensions. These are positive results that speak for themselves. Miss Newman of the Zenana Mission Hospital of Rainawari, who has been working among the *Zenanas* in Srinagar for the last twenty years wrote to me a couple of months ago :

"I, who go about all parts of the city, see the wonderful sanitary improvements. Nothing that is lasting can be done in a hurry; it is the pegging pegging on that tells in time."

The Rev. Mr. Tyndale Biscoe, than whom none knows Srinagar and its inhabitants better, wrote to me last month :

"You have certainly made head-way lately in cleaning out the Augean stables."

Mr. W. Mitchell, who is likewise an old resident of Srinagar, has written to me in similar flattering terms.

But still an immense amount of spade work to improve Srinagar remains to be done. Even now, after so many sanitary reforms have been introduced into it, it is not a desirable place for a prudent person to live in. It has together with the suburbs a population of nearly 1,50,000 inhabiting in 30,000 houses in an area of ten square miles. The houses are huddled together promiscuously without any regard for ventilation and light. The roads are narrow and tortuous and bye-lanes are far worse. The area of ten square miles is not all for the living. A large portion is occupied by the dead. The Kashmiri saying "*Al Kashmiri murdah pasand*" is true enough in the literal sense of the expression, graveyards being found here, there and everywhere within the city. And what the dead have left is not evenly distributed by the living among themselves. The portion of the

city extending over two banks of the Jhelum river, three miles in length and half a mile in breadth, is practically the city proper and is very much congested, the other parts being sparsely populated. Most of the people have no education and no perspective and do not know how to help themselves against the disease. Add to the living and dead human population 10,000 pariah dogs and 30,000 cattle and then add the filthy habits of the people for which they are proverbially notorious and you can easily conceive to what dangerous extent the sanitary well-being of the city is jeopardised. Before the State began to introduce sanitary reforms into Srinagar, epidemics often prevailed during which nothing short of a carnage took place with black destruction and horror in its wake, covering the country with the thickest of palls. The people took no precautions and no measures to protect themselves: they regarded the diseases as unfailing visitors and accepted the inevitable with the usual oriental fatalism.

But this was not always the case. It appears that in ancient times the sanitation of Srinagar was not neglected. The *Rajatarangini* says that in 79-139 A. D. King Praverasena II. chose the present site of Srinagar for his capital and founded the city with "lordly dwellings, pleasure residences, flower gardens and regularly arranged markets and streets." So beautiful was the city that King Lalitaditya, who reigned in Kashmir in the eighth century of the Christian era, grew jealous of it and once being drunk ordered that as it was better than the city of Paraspur founded by himself, it should be burned down. He urged for the orders to be carried out peremptorily. His Ministers, perceiving that he was at the time temporarily insane by intoxication, got a stack of dry grass burnt at some distance and pointed out to him that his orders had been carried out. When afterwards the King came to himself he deeply regretted his madness in having given such a cruel order and began to scold his Ministers for not having used their discretion in executing it. His sorrow was however changed into joy when his Ministers told him what they had actually done.

In olden times the fashion was for each King to build a new city which no doubt originated from the fact that after a certain number of years each city, in the absence of sanitary arrangements, became so unhealthy that it was advisable to leave it. But though Srinagar passed through many vicissitudes, it survived, unlike other cities which rose and fell with the fortune of Kings and their kingdoms and disappeared after enjoying a long or short lease of life of splendour and glory. Its rectangular shape, which secures proper circulation of the air, shows the wisdom and town-planning faculty of its founder. It is bisected by the river Jhelum and intersected by several canals, viz: Mar, Tsuntikul, Katakul, Sonarkul and Dudganga. These river roads provide this city with large lungs, render all kinds of traffic over them exceedingly easy and, above all, are perpetually carrying away immense quantities of its filth and refuse. They have hitherto protected this ' Venice of the East ' from total destruction by fire or pestilence through all the long centuries and changes that swept over Kashmir since it was founded.

The Rajatarangini, which gives a detailed account of the country as far back as 5,000 years, does not mention epidemics of cholera to have prevailed in the country. Its author, Kalhana, who lived in the middle of the 12th century of the Christian era, had consulted eleven other old Rajataranginis and the Nilamat Purana before writing it. He gives minutest account of all the events of the time when he was living and of what he had heard from his father, Champaka, who was then the Prime Minister of Kashmir, and mentions only one epidemic of plague having prevailed during his own and his father's lifetime. Had there occurred any more epidemic diseases they could not have escaped his notice. It cannot, of course, be that cholera was unknown in ancient times but we can, at least, say this much that it must not have been severe to such an extraordinary degree as to induce a historian to make a record thereof. The modern sanitary opinion also supports this. It is that in Kashmir the physical and mete-

orological conditions are unfavourable to the acclimatising of cholera germs. The germs come from abroad and even after finding entrance into the country, the ozone of the air and other natural oxidising agencies give them a short shrift. It is owing to very insanitary conditions prevailing here that the germs live and multiply for some time. It is like a fertile field waiting for the deposition of seeds and never fails to yield a rich harvest of disease. If the germs could not find entrance into the country, which was only possible in olden times when the country enjoyed its unique isolated position and was inaccessible except on foot or horseback, or if the public hygiene was in a comparatively better condition, the country, assisted as it is by benevolent Nature, could enjoy immunity from cholera. Public hygiene would render the soil sterile and, even if the seeds chanced to fall into it, they would not take root.

The causes of this city becoming insanitary are various. Political convulsions from time to time resulted in its ruin and unhealthiness. It was used as a scapegoat by contending rivals for the throne of Kashmir. Both the victors and the vanquished, with ruthless vigour that comes of political panic and dead to the thought that misery was inflicted on the poor innocent people, pillaged and plundered and set fire to it rendering thousands homeless simply for this that they might have the consolation that their opponents would find it a waste if they ultimately succeeded to seize it. In their estimation Kashmir human flesh was of no value. In short the hand of Nemesis fell upon the Kashmiri with ferocious and relentless force.

To the caprice of man were added the cruel visitations of Nature in the shape of earthquakes, fires, floods and famines which devastated the city and reduced its inhabitants to the depth of distress.

Such being the case, how could the people, scorched, wounded and trodden on for centuries and their city constantly rendered a waste think of such a thing as hygiene? The wonder is that they are not more dirty. They do not love

filth as the common notion is. People may be seen on both banks of the river washing clothes, bathing and scrubbing cooking utensils and on a summer day half of Srinagar may be seen turned performing these operations. The Hindus keep their kitchen scrupulously clean and the sitting rooms are swept and cleaned daily and no housewife will take her seat in the morning before cleaning and leeping even the door steps. *Zamīn māji gub kus yus brándah petha mathur kareh* (Mother earth whose burden dost thou feel intolerable? That person's who defiles his compound). This and similar other maxims are taught to children from their babyhood upwards by their mothers. Is not this cultivation of cleanly habits? The dirtiness that exists is due to poverty, poverty and dirtiness being inseparable. Only 50 years ago the male members of even such families as then could be called well-off shared only one blanket. Any one going out of the house wore it and the others had to remain indoor. A man could not afford to have another change of clothes. A clerk had to get leave from his office to wash his clothes, as, so long as his clothes dried after washing, he had to sit up in the house uncovered. In those times there were no such weekly holidays as Sundays and the office hours extended as late as 10 o'clock in the night, hence he had to ask for leave for this purpose. A woman's span of life was spent in spinning her own head-dress and her husband's turban. In the time of Akbar the Great the treasures of an individual consisted of a cap and a quilt. There is a saying which illustrates this fact.

*Az bimi Sháh-i Akbar khurdo kalán hame guft,
Khubihān kujá guzáram, zubihān kirá sipáram.*

(Out of fear of Akbar both young and old would say, Where shall I keep my cap, to whom shall I entrust my quilt?)

The miseries of cold climate are also to be reckoned with. When King Winter makes Kashmir the centre of his dominions and rules supreme here, it is very difficult for poor people in tattered clothes, exposed to the bitter frosty winds, freezing rains and biting snow, to attend to personal cleanli-

ness and most of their time goes in blowing their *kangris* full of charcoals and ashes. A poor man's luxury in winter consists in passing a night on a soft bed of dry grass in a close cow-house warmed by the breathing heat of cattle. Tell him "You will be suffocated and poisoned by this" and he will laughingly reply—"Yes, come to-morrow". *Sadd shitam daridase tadd Kashmira mandali* is too well known a proverb to need any elucidation.

In justice to the people of Srinagar I must again say that generally they are not averse to cleanliness. They are poor and ignorant and unaccustomed to modern sanitary measures. They are like children and must be taught like children by a tactful combination of persuasion and compulsion. Their general conditions have greatly improved and are improving, thanks to the enlightened and benevolent rule of His Highness the Maharaja whose keen and earnest desire ever is to make his subjects increasingly happy and prosperous. Public hygienic measures are pushed on vigorously so far as funds at the disposal of the Municipal Committee permit and it is engaging the earnest attention of the Home Minister to get a grant in aid from the Durbar in order to improve the sanitation on a much larger scale. These measures will, of course, go far to diminish danger. We know that the best way to teach private cleanliness is to enforce public sanitary reforms. But side by side with public sanitary reforms there must be a diffusion of the elements of every-day social and domestic hygiene among the masses. It is necessary to inculcate in the minds of the people that Nature is the best doctor and the Nature's remedies are far superior and far more agreeable than any others to be found in the *materia medica*. It is also necessary to educate them to a realization of the dangers by which they are surrounded. Human body is by itself a little kingdom with a complete organization for keeping order within and preventing the invasions of foes of disease from without. Its Police and Military Departments are vitality and strength and these can be secured and maintained solely by means of good health.

It is fortunate that education is taking long strides in this country generally and in this city particularly. That it will advance the cause of sanitation is certain. Already there has been a certain measure of zeal enlisted in the campaign against disease. There is a growing demand among the educated people for greater efficiency in matters affecting public health.

Huxley has pointed out that—

“Where sanitation is neglected or thwarted, stunted developments, disease and moral degradation cannot but accumulate at compound interest.”

And this is exactly happening now in Srinagar. The general health of the people, specially of boys, is giving cause for serious anxiety. The monster of pthisis is stalking wildly in the land. Typhoid is running riot. Other zymotic diseases are largely prevalent. All these diseases are preventable, as the highest European research teaches, if we observe simple laws of hygiene, that is to say, if we pay due regard to the nature of food we eat, the water we drink, the air we breathe, the clothes we wear and to the cleanliness of our persons, our houses and surroundings. “Sickness,” says Dr. James Wilson, “is the penalty Nature inflicts upon us for violating her laws. Ignorance of law does not excuse the crime or mitigate the penalty.” Dr. Woods Hutchinson in his admirable book on Preventable Diseases says :

“The cause of enteric fever is simplicity itself, merely eating or drinking the excreta of some one else. Eating dirt is the popular phrase: simple, but of deadly effectiveness and disgracefully common.”

To arrest the progress of pthisis it is imperatively necessary to relieve congestion in over-crowded parts of the city in order to bring in sun-light and air, the two chief enemies of the disease. Some one has truly said that where the sun does not go the doctor goes. The Municipality is doing its best in this direction in spite of the people's opposi-

tion. Dr. Ransom in a learned treatise on the treatment of pthisis says: "The mistake of most modern ventilation is that there is not enough of it". The soundness of hygienic measures is well illustrated by Dr. Frankland who says "When man learnt how to protect himself from wild beasts he made the first step in civilisation. To-day man is learning how to protect himself against microbes—it is a step of equal importance. A day will come when in London, Paris and Berlin a man will not die of diphtheria, of typhoid, of scarlet fever, of cholera, of tuberculosis any more than he does in those cities to-day from the venom of snakes or the teeth of wolves". These illustrations show that if we have a will to be well we will be well. But unfortunately most of the people do not know the value of hygienic measures. A Brahman priest once told me "Why do you make all this fuss of sweeping and cleaning the town? Do you think sickness, sent by Providence, can be prevented by such measures?" I said "Yes, learned European doctors are of this opinion". He exclaimed in a scorn "Learned doctors! They must have been sweepers in their former birth and they advocate sweeping in this". Could stupidity go further? I told him "But one of our greatest Rishis, Markandi, advocates the same thing in the Purana called Vishnu Dharmutar. He says "Where roads are swept clean, dwelling houses washed and filth removed far away from human habitations and where people wear clean clothes, there epidemics and sickness can never break out." All glory to Markandi Maneshwar, his name had a magic effect on my angry priest and he spoke no more. Such being the ideas of the priest class we must not wonder if those of our uneducated ladies are no better. A child's playing with ashes and dust is considered auspicious and the mother sings the lullaby:—*Ahamo suras gindān Nūrani phuti chhi tseh tai*. While matrimonial negotiations are going on, our mothers inquire from the go-betweens in regard to the house of the family in which a daughter or son is to be married *Baras tal chhuka dsān latshih lod; monis chhuka dsān tilah brot?* (Is a heap of filth found at their door? Are their walls dirty with the oil of lamps)? If the

answer is in the affirmative they are satisfied. These are considered the marks of affluence of the family. When the public will come to consider these as the marks of degradation and degeneration the day of sanitary regeneration will have dawned.

Napolean says: "Moral is to physical as ten to one". But where there is no physical stamina morality cannot grow. Physical well-being is the precursor of every kind of human welfare. Whole volumes of saving truth are contained in the ancient maxim which the wise Greeks engraved on the portals of their temples dedicated to Hygiea, the goddess of health "*mens sana in corpore sano*" (a sound mind in a sound body). A sickly person lives on but with only half the attributes of life. "To be, is not called life, but to be well". Milton says: "What life thou livest live well". It is needless to say that a healthy peasant is far better than a sickly philosopher. The best gifts of intellect or fortune are of little use if the body be not healthy to use and enjoy them. The possession of good health is the greatest of human felicities and its loss the hardest thing to bear. *Zuv ur tah jahán ur*. If one's self is well the world is well. These and similar other platitudes are necessary to be repeated indefinitely in the hope that the people may grasp their significance. Much is expected from young men who have received good education. Every philanthropic and humanitarian impulse would find its most effective and consistent vent in the struggle against the forces of disease. An individual trying to spread the knowledge for the acquirement of health among the masses, renders a public service the value of which cannot be measured by mere words. There are enough preachers who go about and preach to the people how to improve themselves spiritually: we also want badly preachers to preach ceaselessly to the people how to improve themselves physically. When the people are taught that it is useless to decorate a drawing room before attending to the cleansing of the house-drain; when they know that it is dangerous to live in ill-ventilated and ill-lit houses; when they know the value of pure air and pure

water; in short, when they are convinced of the truth that cleanliness is next to Godliness, then and then alone Srinagar shall be the worthy capital of the "Paradise of the World" and its inhabitants the true descendants of Kashyapa who, as the legend goes, drained out a vast terrific, weedy lake and turned it into this Happy Valley, enjoying therein with all his innumerable children and others the blessings of pure air and pure water.

Personal Hygiene.

[BY DR. M. R. SAMEY, M.D., D.P.H. (U.S.A.), M.R.S.I.
(LONDON).]

Cleanliness.

“CLEANLINESS is next to Godliness.” The most important condition of health is cleanliness. Dirt is disastrous and antagonistic to our very existence. Cleanliness of food, air and water is a *sine qua non* for good health. Since much of the work of the kidneys and lungs is performed by the skin in tropical countries, cleansing of the skin is of much importance in India. The sweat glands which open on the surface of the skin help to relieve the body of a portion of the effete material. If they are blocked up by dirt their action is interfered with and extra work thrown on the lungs and kidneys. Besides they are a prolific cause of the diseases of the skin, when so blocked up. These sebaceous glands must be carefully attended to that their orifices may be kept clean. They secrete an oily substance which acts as a natural pomade. The armpits give out an unpleasant odour from their secretions and so require systematic cleaning along with certain parts of the body of the same ilk. It is evident, *per se*, that the skin requires proper attention and cleaning. This brings us to the question of bathing.

Bathing.

Were all to follow the natural laws of their organization in respect to eating, drinking, clothing, exercise and temperature, an occasional bath or washing would be sufficient;

but as the laws of life and health are transgressed in a thousand ways, the sum total of all the unphysiological laws of uncivilized life is a condition of body characterized by deficient external circulation, capillary obstruction, and internal congestion or engorgement. To counteract this morbid condition of the system, bathing of the whole body, on regular occasions, cannot, or should not, be omitted. For hygienic purposes, the particular process is merely a matter of convenience. You may bathe in a river if you like, or may employ the shower-bath; but these modes are no more beneficial than the towel or sponge-bath. After the ablution in whatever manner performed, care should be taken to thoroughly rub the body with a crash towel. The best time for such purification of the body is on rising from bed in the morning. The temperature of the water should be adapted to suit different circumstances of constitutional health and disease. Cold or cool baths are best for those in robust health; but those who are deficient in blood, or have a low vitality, should use tepid water. Extremely feeble persons should commence with warm water, and gradually reduce the temperature as reaction improves. Sponging the body with spirits or vinegar may prove highly beneficial in many cases of debility, where water would be injurious. Excessive bathing tends to make the skin harsh and scaly by diluting the secretions of the sebaceous glands, the oil of which is intended to be regularly and naturally poured out to the surface of the skin in order to keep it smooth, glossy, and soft. Bathe as often as may be necessary to keep the skin clean, and you will then have fulfilled the requirements of hygienic bathing.

How to Bathe.

The general rules summed up below apply to nearly all baths of every sort:—

1. A full bath should never be taken within two or three hours after eating.
2. Always, if possible, employ a thermometer to determine the temperature of the bath.

3. The temperature of the room during the bath should be 75° to 85°.
4. Aged people should never take very cold or very hot baths.
5. Never take a cold bath when exhausted or chilly.
6. A hot bath should always be followed by an application of water at a little lower temperature.
7. Always drink freely of hot water just before a warm bath.
8. It is usually best to wet the head before a bath.
9. Always be careful to dry the skin thoroughly after a bath.
10. The body should be rubbed with sufficient vigor after each bath to secure a good reaction, and to prevent a feeling of chilliness.
11. After a cool bath, exercise a little to encourage the circulation.

There are various kinds of bathing, to wit, Sponge Bath, Full Bath, Sweating Bath, the Vapor Bath, Hot-air Bath, Oil Bath, Wet Girdle, etc., and Compresses and Fomentations.

Except a very few modes, the other varieties of bath are of a therapeutic interest and constitute a praxis of Hydropathy. The technique of Full Bath is as follows: In a tub the length of the body, about eighteen inches deep, two feet wide at the top, and preferably, six inches narrower at the bottom, with the end intended for the head a little elevated, place sufficient water so that the subject will be entirely covered, with the exception of the head, when he lies upon his back. During the bath, the body should be vigorously rubbed by the bather or an attendant, or both, particular pains being taken to knead and manipulate the abdomen in a gentle but thorough manner. The temperature of the bath, when taken for cleanliness or for its soothing effects, should not be higher than 95° to 98°, and it should be cooled to 85° to 90° just at the conclusion of the bath, by the addition of cool water.

Every family ought to possess conveniences for a full bath. It is not so expensive but that any man can have it. Portable baths of rubber may be obtained, which are worth many times their cost. A stationary bath may be made of wood, of the dimensions given, and lined with lead or zinc. There should be an opening in the lower end for withdrawing the water.

The full bath is one of the most refreshing of all baths, being also one of the pleasantest. Employed at a low temperature, it is a powerful means of reducing excessive heat in fevers. The hot full bath very greatly relieves the pain of acute Rheumatism, Colic, Gall-stones, and Sciatica, and is almost a specific for colds, if taken soon after their contraction and just before retiring.

Very hot and very cold temperatures are very hazardous with this bath, since it involves so large a portion of the body. Such extremes are very rarely useful in any case. Cold bath is very much better borne if the patient is well anointed with vaseline before being placed in the water. The effects are not diminished.

The oil bath was much employed by the ancients in connection with the Roman and Turkish baths. It consists in rubbing the skin very thoroughly with some unctuous substance. Olive-oil may be employed, but cosmoline and vaseline, refined products of coal-oil, are much used, and are preferable. Olive-oil cannot be obtained pure except at almost fabulous prices. That sold in the dry stores as olive-oil, is really cotton-seed oil, and mixtures of lard with various other vegetable oils. Pure refined cocoanut-oil is the best of all for this purpose.

A warm bath should be administered first. Then dry the subject as usual, and apply the unguent, taking care to rub it in thoroughly. Simply greasing the surface is not the object sought. The skin and flesh should be worked, rubbed and kneaded, until the oil nearly disappears from the surface. The skin should then be wiped clean with a soft cloth.

The object of this application is to supply the place of a defective natural secretion of oleaginous material, to increase the activity of the skin and to diminish the susceptibility to cold. How this is accomplished, readily appears. The oil is a simple substitute for the sebaceous secretion which is, in certain classes of diseases, notably deficient. The thorough manipulation of the skin which is necessary in applying the oil, and which is facilitated by a lubricant, directly promotes cutaneous activity. Whether the oil itself has any direct effect in increasing functional activity of the skin, cannot be positively affirmed, although it is reasonably supposable that the skin would act more nearly normal when a deficient element is supplied than when it is wanting. Recent experiments show that the skin radiates heat faster when varnished or anointed, and this may account in part for the warming effect of the oil bath, as also for the protection it affords against taking cold after warm baths.

Closely allied to the question of cleanliness and bathing is the much scouted question of soap as an accessory to baths.

Cleanliness of the skin is secured by the use of soap and water which effect a thorough cleansing of the skin.

SOAP.—When an oil or fatty acid, *e.g.*, palmitic, stearic, or oleic, is acted upon by an alkali (sodium or potassium salt) soap is produced, with glycerine as a by-product. Potash soaps are known as soft soaps, and they are highly deliquescent; white soda soaps are called hard soaps. Excess of soda irritates the skin.

The following are the common varieties of domestic soaps :

Toilet Soaps.—These are generally prepared from lard, marrow or sweet almond-oil. They are colored by special pigments and variously perfumed. *Brown Windsor soap* is made from the residue of refined fats and perfumed with oil of bitter almonds. *Marine soaps* are made by the action of soda or potash upon cocoanut-oil and are not rendered insoluble

by brine, and, therefore, they form a lather with sea water. By mixing resin with tallow or palm oil, *yellow soap* is formed ; this is somewhat rough and firm. *Castor oil soap* prepared with castor oil and soda is very emollient. Normal soaps contain 15 to 25 per cent. of water ; "liquoring" consists in adding 5 to 25 per cent. of soluble glass or silicate of soda to a soap. By this process soap is made to contain 70 per cent. of water. *Glycerine soap* is ordinary soap to which glycerine has been added.

It should be observed that individually the substances employed in the manufacture of ordinary soap are ill-suited for the purpose of cleansing the skin. Caustic soda is corrosive and dissolves the article, while the oils and fats do not mix with water. But by their chemical action a new compound is formed which is almost harmless to most skins and their destructive qualities are entirely lost. The rationale of the cleansing action of the soap is as follows :

The dirt adhering to the body is mostly composed of dust and other extraneous matter combined with the perspiration and the greasy excretion from the skin. When ordinary hard soap is brought into contact with water, it is decomposed and gives off part of its soda, which unites with, and removes from the skin, the unctuous dirt thus rendered mixible in the water used for washing. As the more the liberated soda is diluted the less will be its caustic effect on the skin, it is clear that a liberal supply of water should accompany the use of soap in personal ablution.

Inunction of the body with some bland oil before bathing is a popular custom in India. The oils usually employed for this purpose are expressed oil of mustard, cocoanut, or sesamum, either by itself or perfumed. The utility of this practice is evident. It keeps the body cool, renders the skin soft and supple and helps the introduction of a certain amount of fat. Besides, by entangling the dirt of the body this practice facilitates the removal of dirt during bathing,

especially when soap is used. Moreover, it facilitates shampooing or massaging of the body which may with advantage be done just before bath. By kneading and rubbing, the circulation is quickened and the muscles exercised, giving an exhilarating and refreshing feeling.

The following classification of baths according to the temperature of the water cannot fail to be of general interest:—

Cold	...	...	33° to 65° F.
Cool	...	...	65° to 75° F.
Temperate	...	...	75° to 85° F.
Tepid	...	...	85° to 92° F.
Warm	...	...	92° to 98° F.
Hot	...	...	98° to 112° F.

WARM BATH:—It has a stimulating action on the skin and reflexly excites the heart and circulation. Napoleon used to have recourse to a warm bath instead of yielding to sleep after a battle. As a cleansing agent, a warm bath, when used with soap, is the best. The skin is a delicate organ, and when covered by clothing becomes highly sensitive to thermic influences. Hence the people of India, who are accustomed and keep their body bare, rarely suffer from the effects of cold to the same extent as Europeans.

Personal Cleanliness.

This involves attention to the skin, mouth, nails, hair and other parts of the body. The mouth should be kept perfectly clean and teeth regularly attended to.

“The teeth should be thoroughly cleaned at least twice a day with a brush of only moderate hardness; and if the teeth are inclined to decay between, or there are fillings between them, floss silk should be carefully passed through so as to thoroughly clean the surfaces.

Any place where the food habitually lodges, and whence it is not promptly removed, is quite sure to decay sooner or later; and on the other hand teeth rarely decay on a fully exposed surface. It will be seen, therefore, that most

scrupulous cleanliness is the best of all preservatives for the teeth, and that the more delicate they are, the greater the need of frequent and thorough brushing—a thing which can hardly be overdone. Carious teeth should be stopped.”

The tongue should be cleansed by a tongue-cleanser every morning. The nails require to be kept clean and cut short, otherwise dirt will lodge under them and may carry infection. The hair requires to be daily brushed and combed. The chief necessity for the hair is not so much daily ablution for this may be carried to excess, but cleanliness. Proper and thorough cleansing is required both for men and women. This is best done with soap and hot water, or yolk of egg, washing soda, or better still by the use of soap-nut solution (water prepared by steeping soap-nut for a few hours). One should always practise to shave oneself and must avoid a barber's razor. Money spent on a shaving set is a profitable investment and not expense.

The Care of the Baby.*

III. Weaning.

THE baby should be completely weaned at the end of the first year. Up to this time breast milk should be given to the baby as long as it thrives. It is better, when possible, to continue nursing through the summer and to wean in the fall. It is better to wean in the summer than in the spring, if by doing so the baby can have breast milk longer.

Do not wean the baby suddenly; it should be done gradually by replacing one breast feeding at a time with a bottle feeding. Several weeks are required for weaning.

It is dangerous to wean a young baby. It should not be done for the convenience of the mother and should never be done without the advice of a physician.

* From a pamphlet prepared by the Committee of the American Association for the study and prevention of Infant Mortality.

The previous portions appeared in the July issue of the *Local Self-Government Gazette*.

Contagious disease in the mother does not mean that it is necessary to wean the baby. In case of severe illness, contagious or otherwise, a temporary weaning may be necessary for the mother's sake. A physician should decide this. As soon as the mother's condition permits, the baby should be put back on the breast. The supply of breast milk can sometimes be brought back by putting the baby regularly to the breast for several days, even when nursing has been stopped for several weeks.

IV. Mixed Feeding.

When the mother's milk is diminishing it is advisable to make up the lack with properly prepared cow's milk. This may be done either by following one or more breast feedings with enough modified milk to satisfy the baby or by giving one or more full bottle feedings in place of a like number of breast feedings.

The flow of breast milk tends to diminish when the baby nurses less than five times in 24 hours. When the baby is being nursed once every 4 hours and is not satisfied, it is better to give him after nursing enough modified milk to satisfy him, rather than to replace a nursing with the bottle. If, on the other hand, shorter intervals and more feedings are being used, a bottle feeding may take the place of a nursing without so much danger of decreasing the milk supply. Most babies need additional food after the seventh month.

V. Bottle Feeding.

Cow's milk is the most satisfactory substitute for mother's milk. The best milk (this does not mean the richest milk) is none too good. Get "certified" milk if possible. If you cannot obtain certified milk, get the cleanest and purest bottled milk you can find. Milk sold in bulk, or bottled from the can in stores, or by milkmen in their wagons, is likely to be stale and contaminated and not a proper food for the baby, even though it looks and tastes good. *"Baby foods" and condensed milks and the like are not satisfactory substitutes for good cow's milk and often harm the baby.*

Raw milk may carry the germs of tuberculosis, scarlet fever, tonsillitis, diphtheria, typhoid, and other communicable diseases. Unless the milk is above suspicion, danger should be prevented by proper pasteurization of the milk or by boiling or by sterilization.

Pasteurization.—Pasteurization means heating the milk to about 150° F. for 30 minutes and then rapidly cooling it. Milk for the baby should always be pasteurized in the feeding bottle. It may be done as follows: The milk should be mixed and poured into the clean feeding bottles, which should then be stopped with clean, non-absorbent cotton. It is then ready for pasteurization. While a number of satisfactory pasteurizers may be bought in the shops, a home-made pasteurizer can be easily constructed.

Take a wire basket that will hold all the nursing bottles for 24 hours and place this basket containing the bottles in a vessel of cold water filled to a point a little above the level of the milk. Heat the water and allow it to boil for five minutes. Then run cold water into the vessel until the milk is cooled to the temperature of the running water. The milk is then put into the ice chest, which should be not warmer than 50° F.

Sterilization.—By sterilization of milk is meant the process of rendering it germ free by boiling it on 3 successive days or by keeping it for 15 minutes under pressure at a temperature of 242° F.

Boiling.—Milk is boiled for one or two minutes in a large vessel and poured immediately into the sterilized bottles, stoppered with cotton, rapidly cooled in running water, and put on the ice. This destroys all living bacteria but not spores or eggs, which will not do harm unless the milk is kept too long after boiling. It should be used within 24 hours.

If the baby's milk is to be mixed with other ingredients, such as oatmeal, barley water, rice water, sugar, etc., these should be added to the milk before pasteurization, boiling, or

sterilization. When the milk is once prepared the bottle should not be opened until it is given to the baby.

Preservation of the baby's milk.—After the baby's milk has been prepared, it is very important that it should be kept cold until it is used.

A simple ice box can be made as follows: Procure a wooden box about 18 inches square and 12 inches deep. Get two tin boxes, one about 11 inches square and 9 inches deep, the other 10 inches square and 9 inches deep. Cracker boxes will do. Cut the bottom out of the larger box. Place 3 inches of sawdust in the wooden box. Put the larger bottomless box upon the layer of sawdust and fill the space between the wooden and the outer tin box with sawdust. Fasten the pieces forming the lid of the wooden box together with cleats nailed on the outer surface. Tack about 50 layers of newspapers cut to the size of the wooden box to the inner surface of the lid. Make hinges for the lid by tacking two strips of leather onto the outside of the box and then tack additional strips of leather to the front edge of the lid to catch on nails driven into that side of the box, in order to hold the lid down tightly. The ice box is now ready for use. Into the smaller tin box put your wire basket containing the filled and stoppered nursing bottles (or a quart and a pint bottle of milk) and surround them with cracked ice. Place the smaller tin box inside the larger and close the lid. Each morning remove the inner box, pour out the water, clean, and repack with ice. Keep the ice box in a cool, shady place.

This ice box, if properly cared for, and kept full of ice, will keep a day's supply of milk cool and sweet.

Precautions to be observed in preparing the Baby's Food.

Everything that comes in contact with the baby's food must be clean. The hands should be washed with hot water, soap, nailbrush, and dried with a clean towel before touching anything that goes into the baby's mouth. The dishes used

in preparing the food should be boiled and allowed to dry from their own heat. Do not use a dish towel.

Bottles.—As soon as the baby has finished his feeding throw out any remaining milk, rinse the nursing bottle, and fill it with cold water. When ready to prepare the milk for the next 24 hours, empty the bottles, wash them thoroughly with hot soapsuds and a bottle brush, and then rinse and boil them for 15 minutes. The bottles are then ready for filling.

Nipples.—Only nipples that can be kept clean easily should be used. They should be turned inside out, scrubbed, cleansed, and boiled. After boiling they should be kept covered in a clean, dry glass. Dirty nipples should not be kept with clean ones. Never use nipples connected with long glass or rubber tubes.

Directions for the Bottle Feeding of Babies.

Babies that are artificially fed should be under the supervision of a physician, who should see them at regular intervals. Very young babies, or those that are not thriving, should always be seen once a week, while older healthy babies should be seen at least once a month, whether they are sick or well. The following rules and suggestions apply to all bottle-fed babies :

Before feeding, warm the food to blood heat by putting the bottle in a vessel of warm water. Do not test the temperature of the milk by putting the nipple in your own mouth, but sprinkle a few drops on the inner surface of your arm. Be careful not to allow the food to become too hot and see that it does not cool too much while the baby is nursing. This can be prevented by wrapping the bottle in a piece of flannel.

Hold the bottle for the baby throughout the feeding. Do not coax the baby to take more food than it wants, and do not allow it to drink longer than 20 minutes from the bottle. If it takes longer, there is something the matter with the baby or with the nipple.

If there is any food left in the bottle, throw it away ; do not give it to the baby later.

Convenient feeding hours are the same as those for the breastfed babies.

When the baby has diarrhœa, either with or without vomiting, stop all food at once. Give it one or two teaspoonfuls of castor oil, allow it to have plenty of boiled water to drink, and send for a physician immediately. Save the soiled diapers for the physician to examine. (Always keep them covered.)

If the baby refuses to drink unsweetened, cooled, boiled water, give it barley or oatmeal water.

Be sure to wash the hands thoroughly after changing a diaper and before preparing food. Boil all the soiled diapers for half an hour to kill the dangerous germs which might spread the diarrhœa among the other members of the household. Keep the diapers in a solution of strong disinfectant (2 tablespoonfuls of pure carbolic acid in 2 quarts of warm water) in a covered vessel until ready to boil.

The Pilgrim Committee Report (Madras.)

IN the *Local Self-Government Gazette* for September 1916, we reviewed the Report of the Madras Pilgrim Committee, and in the last April issue, we published the general review of the Sanitary Commissioner with the Government of India. We reprint elsewhere in this issue* the order of the Madras Government on these communications.

At first sight, it strikes one as a very superficial disposal of an important problem. The detailed recommendations on each of the places visited by the Committee and their general recommendations in regard to water-supply, medical aid and

* Vide Government Orders and Notifications, page 634.

conservancy are commended to the local bodies concerned, for adoption as far as funds permit. Instructions are issued for the systematic cleaning of latrines in third class railway carriages, and for the systematic analysis of drinking water supplied at the more important railway stations. The need for the careful diagnosis of cholera cases and their careful investigation so as to trace the origin and spread of the infection, the desirability of co-ordinated action on the part of the sanitary authorities of the various provinces in order to prevent the spread of infection, and the advantage of compiling a manual of instructions for the guidance of authorities controlling pilgrim centres and festivals are clearly recognised. But for any immediate action that will at once improve the lot of pilgrims or better the centres of pilgrimage, we have perhaps no right to look in the present circumstances, when a world-wide War of devastation has dried up all our financial resources. In other words, we must patiently hope for better times to come, before we can expect to reap any benefit from the money spent on these Pilgrim Committees.

Public Water Supply.

INSTANCES are not wanting of English cities neglecting their water and drainage works as a result of which these works which had been provided at considerable expense had been rendered quite useless. Such a case is that of Killorglin in the west of Ireland. An investigation by the Chief Engineering Inspector to the Local Government Board disclosed a discreditable state of affairs in the management of the water works of this town. An unauthorised provision of manholes inside the filters rendered the latter useless as all the water was passing through the tops and sides of these manholes without any filtration. The water pressure in the town had decreased considerably owing to incrustated and leaky mains. Serious waste was observed owing to leakage on the main pipes, defective fittings, taps, etc. Sewers were

not regularly flushed. A sewer was found practically choked and causing a nuisance. The District Council seem to be mainly responsible for the failure in the efficient management of the sanitary works in the town. The Chief Inspector has recommended small but important improvements which are calculated to restore the efficiency of the water works and has impressed on the District Council the importance of efficient maintenance. This only shows how important it is to take better care of the sanitary engineering works even in small towns. We are afraid that in many Indian towns where costly sanitary works have been installed, the conditions are just as bad, if not worse, on account of the inefficient management and indifference of the local bodies concerned.

The Calcutta Municipal Dhobikhana.

IN connection with what is known as the South Dhobikhana, the Corporation of Calcutta has incurred a large capital expenditure, *viz.*, Rs. 1,64,064 for construction and Rs. 13,991 for steam washing plant, engine room, etc. The cost of maintenance amounts to about Rs. 280 per mensem not including the cost of coke, water consumed daily, etc. The monthly cost of the institution including loan charges, depreciation and maintenance is Rs. 1,666. The receipts, however, during the last three years varied from Rs. 400 to Rs. 650 per mensem. Financially, the result was far from satisfactory, though the advantage of having clothes washed cheaply and under sanitary conditions is, from the public health point of view, quite obvious.

In January 1917, the Acting Chairman of the Corporation re-organised the staff and attempted to place the finances of the Dhobikhana on a more satisfactory footing. Ever since, the receipts have risen and with careful and more intelligent working and supervision, it should be possible to induce the dhobies to take to machine-washing more generally. At present the cost of washing 100 pieces in the steam plant is Re. 1-14 excluding cost of water. By hand,

it is Re. 1-7. The former sterilises the soiled linens more thoroughly than straining in the open pan used by hand-washing dhobies, and there is the further advantage that with the steam plant clothes could be washed quickly and under cover during the rains.

It appears to us that if this industry fails to yield an adequate return on the investment—and we doubt very much whether it ever will—its subsidization is justifiable if it could be made popular among the dhobies and if it could be shown to them that modern time-and labour-saving methods are more efficient, economical and sanitary than the crude, wasteful and insanitary methods of ancient days. The aim of the Corporation should be to educate the dhobies in modern methods and induce them to take to these methods of their own accord after a fairly long trial and demonstration by the Corporation. In our opinion, no Municipal or Local Body should expect an adequate financial return on its investment on dhobikhanas except in the direction of public health. We believe the experience of the Madras Corporation points in the same direction.

Anti-Malaria Measures in Bombay.

THE following report of the Executive Health Officer describes in detail the manner in which malarial measures are being carried out by the Bombay Corporation. The Malaria Department endeavours to take action only in cases in which it is absolutely necessary and the Report shows that many facilities are afforded to the public before compulsion is resorted to, and the religious feelings of the people are as far as possible respected. In cases in which parties are unable to incur the expenditure involved in covering or filling in wells, care is taken to provide funds from the Government grant set apart for the purpose.

The Committee appointed to consider the policy of the Corporation concerning anti-malarial measures have found that whatever may have been the misunderstandings or causes

of friction between the municipality and individual owners in the early stages of the campaign against malaria, the operations are now being carried on in a conciliatory manner.

The malarial measures now carried out are the same as were adopted since the department was created in 1912.

The staff at present consists of 4 Inspectors, 28 Sub-Inspectors, 4 Muccadums and coolies, under the direct supervision and control of the Special Assistant to the Health Officer, Malaria, who acts under the orders of the Executive Health Officer and the Municipal Commissioner.

All houses are regularly inspected and whenever larvæ are found in wells, the Malaria Inspector reports the same to the Malaria Officer, who, after personal inspection, addresses a letter to the owner of the well to hermetically cover the same, utilizing the water by means of a hand-pump*. If no reply is received within 15 days, a reminder is addressed to the party and if after this larvæ are still found on several inspections, the water is sent to the Municipal Analyst for chemical analysis and the well enlisted for Municipal Commissioner's orders. If the party wants a fish trial, the same is allowed for long periods and if this fails covering is enforced.

If an owner puts forth religious objections, enquiry is made by two officers, *viz.*, the Special Assistant to the Health Officer, Malaria, and the Deputy Health Officer of the Ward in which the well is situated as to the validity of the religious objections.

If the religious objections are valid, the well is allowed to be covered over with concrete with a wire-gauze trap-door, minimum size 16"×16" in area. In cases where parties want more trap-doors, the question is fully considered and

* It may be stated here that all that this Department requires is to protect the well from mosquitoes and not in any way to prevent the water being used. This can be easily achieved by covering the well with concrete, and by providing a hand-pump which can be had without rubber or leather valves.

two and even three or four trap-doors are allowed, provided the well water is very largely used. In cases where strong religious objections are urged, full wire-gauze covers are allowed.

When wells are enlisted, the return is taken by the Malaria Officer personally to the Municipal Commissioner who discusses each item with him and passes his final orders. In contested cases, and if the party so desires, the Municipal Commissioner personally inspects the well with the Malaria Officer.

In cases where there are no religious objections, hermetical covers are enforced with hand-pumps. Even here trap-doors are sometimes allowed, specially in livery and milch cattle stables.

In big wells for irrigation purposes concrete covers with iron sliding trap-doors working on pulleys are allowed for moats.

After the Municipal Commissioner finally passes his orders, notices are served on the party, embodying the necessary requirements and giving time up to 15 days or more. If the owner on whom the requisition is made is not satisfied with the Municipal Commissioner's decision, he has a right of appeal to the Standing Committee, within the time prescribed in the notice, when all further proceedings are stopped till the decision of the Standing Committee. After the appeal is disposed of by the Standing Committee, another notice is served and if this is not complied with, proceedings are taken in Court. Before the hearing of the case, if the requisition is complied with, the case is withdrawn and conviction not pressed. In cases in which no appeal is made to the Standing Committee, and if the work is not done, the case is taken to Court.

In a large number of cases the trap-door rules are always violated, the trap-doors invariably found open and the wells breeding larvæ. For this warning letters are repeatedly sent, even under the Municipal Commissioner's signature, but with very little effect.

In none of these cases are stronger measures adopted as the object is to adopt a conciliatory policy in this matter.

A large number of wells are also found in a non-mosquito-proof condition and not repaired in spite of several reminders.

Malaria measures are also adopted in case of cisterns over water-closets in mills, and in factories, also for fountains, masonry tanks, and low-lying plots of ground.

As regards cisterns, hermetical covers are enforced whether they breed larvæ or not. In a large number of cases, action for cisterns has to be repeated as when the cover is opened for repairing the ballcock or for any other repairs, the covers are left open. Thus constant inspection and action is necessary. The cisterns being of old types, it would cause great deal of expense to put in proper cap-like covers with lock and key arrangements, and hence this procedure is not adopted, unless the cistern is repeatedly found non-mosquito-proof.

As regards the low-lying plots of ground action to fill in such plots is taken and sufficient time is given to parties to comply.

In case of fountains and masonry tanks, action is taken only in cases where they breed. A large number of fountains are below ground levels with the result that the fountains cannot be properly cleaned up to the very drop of water. In such cases covering or filling in the fountains is not enforced in the first instance. At first an opportunity is given to the owner to fill in the fountain about 6 inches above the ground level, cement and slope the bottom and connect the same to the drain, so that when the fountain is to be emptied the plug has to be removed and thus no water remains therein; when, however, owners still neglect to keep their fountains free from larvæ, filling in or covering is pressed.

Action in cases of cisterns, fountains, masonry tanks and low-lying plots of ground is taken by the Malaria Department, subject to appeals either to the Executive Health Officer or the Municipal Commissioner.

In addition to the measures of controlling malaria, the staff tries to find out breeding places of other varieties of mosquitoes, *viz.*, culex and stegomyia.

A large number of odd receptacles lying on private grounds are removed by the staff to prevent mosquito nuisance. Similarly, all buildings under construction have to be periodically inspected as tubs full of water, and water on the concrete flooring breed stegomyia and culex larvæ.

The public are educated regarding the dangers of mosquitoes and whenever these prevail, complaints are made and these have to be investigated. This takes up a good deal of the time of the Malaria Staff. In many cases the breeding places are in the same building, the anti-formicas and flower vases being the chief sources.

The Bombay Co-operative Housing Association.

AT the monthly meeting of the Association held on August 7th, an interesting paper was presented by Mr. N. M. Joshi on Miss Octavia Hill's work of ameliorating the housing conditions of the poor.

The discussion on the paper turned mainly upon the question as to how far it would be feasible under existing conditions in Bombay to adopt Miss Hill's methods successfully. It was pointed out that the 5 per cent. interest which landlords in London were content with when Government paper yielded 3 per cent. interest would not satisfy landlords in Bombay where Government paper now yielded 5 or 5½ per cent.; also that, having regard to the heavy cost of building, a good return could not be expected from chawls for working people unless the wages of the working classes were substantially increased. The Chairman said that the Improvement Trust were content with a return of 4½ per cent. and he promised to put before the Trust for consideration any offer of a well managed society, like the Servants of India Society,

for taking over the management of a Trust chawl on the understanding that anything they could save out of the 35 per cent. of gross rent now spent by the Trust on outgoings might be spent for the benefit of the chawl tenants.

With reference to Miss Hill's objection to Municipal building enterprise and the demolition of old houses and to Mr. Joshi's advocacy of the policy of making construction keep pace with destruction, the Chairman stated that in recent years construction and reconstruction had added to residential floor area in Bombay City sufficient to accommodate about 10,000 people per annum. So far as the Improvement Trust were concerned they had got a big balance of demolished tenants against them some 12 years ago, but have since been gradually reducing this balance. They had dishoused about 71,000 persons in the last 19 years while 68,000 had been rehoused on their estates including 5,000 in vacant rooms in old houses acquired by the Trust and 31,000 in new houses built by the Trust's tenants.

The Bangalore Town Hall and Municipal Office.

AT a meeting of the City Improvement Committee of the Bangalore City Municipality, held on 16th July, the site for the Town Hall and Municipal Office and the style of architecture were considered. Mr. Fritchley, the Architect, having kindly attended the meeting at the request of the Chairman and explained to the Committee the aesthetic, financial and other advantages of the large open site opposite the present market for locating the Town Hall and Municipal Office Buildings, the Committee approved of the site and the "setting" of the group of buildings shown in site plan No. 1 prepared by the Architect with an explanatory note. This would involve the removal of the existing power house.

The Committee also resolved that the "Classic" style of Architecture be adopted for the proposed Town Hall and Municipal Office Buildings and the Market front, in preference

to the Indo-Saracenic, as the former is not only the generally adopted style for all public buildings in modern times, but is also more dignified and economical.

The Committee recommended that Mr. Fritchley be entrusted with the preparation of the plans and estimates, and working drawings, and supervision of construction on the terms offered by him, *viz.*, 5 per cent of the estimated cost, for preparing sketches and 8" scale drawings, detail estimates, and working drawings and the supervision of works during construction. The design for the interior of the Market is not included in this arrangement and was left for further consideration.

The Late Dr. Dadabhai Naoroji.

THE following resolution was passed by the Corporation of Bombay, the Councillors signifying their assent in solemn silence by rising from their seats and remaining standing for some time :—

That the Municipal Corporation of Bombay have heard with deep regret of the death of Dr. Dadabhai Naoroji, LL.D., whose many-sided public-spirited services for well nigh three-quarters of a century included membership of the Corporation for four years and of the Town Council for two years, during which period he rendered most valuable services to the Corporation and the City. Animated by a lofty spirit of self-sacrifice and devotion to the country of his birth, Dr. Dadabhai worked most unselfishly with unique energy and earnestness for the social, religious, economic and political advancement of his countrymen. He was the first Indian who succeeded in gaining entrance in the House of Commons. Both in and outside that august Assembly he was the trusted leader and powerful exponent of Indian opinion, and he has left behind him a singularly noble example of sterling patriotism, personal service and blameless life which will be a constant source of inspiration to the youths of this country for generations to come.

2. That a copy of this Resolution be forwarded to the family of the departed patriot with an expression of the Corporation's sympathy in their bereavement.

3. That as a mark of respect to the memory of the deceased the meeting do adjourn without proceeding to the transaction of business.

Legislative Intelligence.

[Imperial Parliament.]

MOTOR SWEEPING MACHINES.

MR. Lough asked the Minister of Munitions whether an application was made by the Metropolitan borough of Islington to the priority branch of the Ministry of Munitions for a certificate allowing them to purchase a motor sweeping machine from a firm in York Road, Islington, which is prepared to supply it; whether this application was refused; whether such applications have been granted to other metropolitan boroughs; and, having regard to the difficulty of procuring horses and the price of fodder, and the urgent need for curtailing expenses, he is prepared to reconsider this decision?

Dr. Addison: It is the case that during the past twelve months a few motor sweeping machines were from time to time supplied to borough councils. but the necessity for the provision of spare parts for motor transport has required the curtailment of permits for motor sweeping machines. The particular application of the Islington Borough Council has been looked into again, and, in view of the fact that it can be completed out of parts already in stock, without much additional expenditure of labour, it has been decided to grant a permit for its completion, subject to there being no interference with war work. It is necessary to make it quite clear that the Ministry of Munitions is not in a position to supply motor sweeping machines to municipal authorities unless there are exceptional circumstances in any particular case.

[Bombay.]

The Hon'ble Mr. Pandurang Anant Desai asked Government to state the total amount of grants, recurring and non-recurring during the last five years received from the Government of India for the purposes of sanitation.

Government replied :—

During the five years 1912-13 to 1916-17 grants aggregating Rs. 51,20,000 were received from the Government of India for the purpose of assisting local bodies in financing sanitary projects. The Government of India also sanctioned in 1905 a recurring assignment of Rs. 7,00,000 for distribution among the District Local Boards in this Presidency, which has to be spent on objects other than educational, such as the improvement of communications, water-supply and village sanitation, and the proper equipment and maintenance of dispensaries. This latter amount is fully distributed among the District Local Boards every year.

Against the grants amounting to Rs. 51,20,000 referred to above, an aggregate expenditure of Rs. 34,83,000 was incurred on sanitary projects during the period.

Government Orders and Notifications.

[Burma.]**IMPROVEMENT OF THE VILLAGE SYSTEM.**

THE Lieutenant-Governor is impressed by the importance of maintaining and improving the village system in Burma, which is the basis of the administration. The two main principles of the system are the enforcement of the joint responsibility of the village community and the appointment of a headman to every village-tract who shall be the local magistrate and therefore the leader and representative of the community. The former principle is well understood and has not been neglected. It is in regard to the position of the headman that the Lieutenant-Governor believes that improvement is desirable. His Honour has ascertained that there is general agreement that the position of the headman in many cases has been lowered to such an extent that he does not retain his

position as leading villager. The principal cause of this has been the excessive subdivision of village-tracts. Another factor has been the tendency, which exists in all countries, for non-expert or unpaid agency to be supplanted by expert or paid agency. His Honour has no doubt that this is taking place in Burma to some extent. As the number of subordinate officials increases, so also does the tendency to regard the headman as an inferior link in the official chain rather than the non-official head of his village-tract. It has always been the policy of Government to oppose this tendency, which is entirely wrong—vide Chapter III of the Executive Orders under the Burma Village Act, 1907; but the tendency is persistent and requires constant repression. Sir Harcourt Butler's views on this point are those of his predecessors, and were set out as follows in a recent Resolution on village administration: "One of the causes which give rise to indiscretion in the punishment of headmen is a tendency to regard them merely as minor Government officials. This is an entirely wrong view. The position of headmen must be built up. He is the representative of his villagers, and one of the principal objects of village administration is to maintain and increase his dignity in the eyes of the local inhabitants." The Lieutenant-Governor has made careful enquiries as to the best means of giving further effect to this policy, and proposes now to lay down certain lines on which action should be taken. His Honour's desire is to avoid excessive uniformity and encourage experiment. Commissioners will be given latitude to test new measures, which should not be applauded or condemned without practical experience. Conditions vary in different parts of the Province. In rich, densely cultivated areas where villages lie close together, the remuneration of the headmen must be different from what it is in sparsely populated tracks where villages are remote. Nor is the difference confined to remuneration. In some parts of the Province the reinforcement of the hereditary principle appears to competent observers to be urgently needed. In other parts there is a demand for something like election of the leading villager by the village community. The Government can only lay down general principles and encourage local officers to experiment in detail. His Honour attaches the greatest importance, in all experiments, to individual selection. Where new measures are to be tried, the only good plan is to select those headmen who can do what is required, give them the powers and leave the others till they are qualified.

2. In appointing headmen the greatest care should be exercised. If the Deputy Commissioner does not know a candidate personally, he should make careful enquiries in order to make certain that only men of good character and standing are appointed. It has been suggested that the Superintendent of Police should always be consulted, but the Lieutenant-Governor would in no circumstances agree to that. To make it a general rule that the Superintendent of Police had a necessary voice in the appointment of headmen would at once give rise to the mistaken idea that the headman was subordinate to the police.

3. The dignity and authority of headmen can probably be raised and strengthened by co-operation among themselves. For this purpose it is proposed, as an experiment, to establish benches of headmen with magisterial powers. Each bench will be composed of the headmen of a number of village-tracts, and will be empowered under the Village Act to try the more common and less serious offences and dispose of other matters of local interest. These benches will, it is hoped, supply a useful link between the Township Officer and the headman and invigorate the headman by association with his fellows. The Lieutenant-Governor has decided to undertake the amendment of the Village Act necessary for this experiment to be tried. As soon as the law permits, a beginning may be made in any Division, but only in favourable conditions where benches can be selected judiciously. When benches are in existence the Township Officer will communicate with the chairman of the bench on all matters with which the headmen composing it are concerned.

4. While the formation of benches will be tried in selected localities as a means of raising the status of headmen, an indispensable condition everywhere is that a headman shall have a charge of sufficient importance to give him a position of authority and shall receive adequate remuneration. Wherever village-tracts are too small they must be enlarged for that purpose. This entails amalgamation of neighbouring village-tracts, which is already being gradually effected; but the progress hitherto has been comparatively small, and if the present system of waiting for vacancies continues, there is a danger, in many parts of the Province, that the process may die of inanition. In the Lieutenant-Governor's view, a strenuous effort should be made, where the conditions are not unfavourable, to convert all village-tracts to a size compatible

with administrative efficiency. The best method of proceeding may differ in different localities. When benches of headmen have been formed, it may be possible to leave it to the members of a bench to arrange amalgamation among themselves by selecting village-tracts in their group to be absorbed. Where benches have not been constituted, a District might be divided into groups and the headmen of each group invited to arrange a reduction of their number. The Lieutenant-Governor does not propose to lay down any general rule on the subject.

5. Amalgamation is the best method of providing adequate remuneration, and it should not be necessary to increase the rate of a headman's commission on revenue collections except where amalgamation is not feasible. The present rules regarding *thugyisa* land and assignments of revenue are believed to be sufficient. It is hardly necessary to add that special respect should be shown to headmen on all occasions, and that every effort should be made to enhance their dignity and independence. His Honour is glad to note that headmen who do good work are generally rewarded with liberality. As regards the grant of certificates of good service, there is no objection to a certificate being given by a Superintendent of Police to a headman who has done good work for the police, but no police-officer below the rank of Superintendent should give a certificate to a headman.

6. One disadvantage inherent in the post of headman is that he is from time to time called away from his village, thereby incurring expenses in addition to the interruption of his private occupation. It is desirable that headmen should be called away as little as possible. It is not necessary to grant travelling allowance, but when a headman is summoned to headquarters in connection with a general or revenue case, he should receive subsistence money as if he were a witness in a judicial proceeding. The holding of conferences of headmen, at which rewards are distributed, difficulties elucidated and instruction given, commends itself to the Lieutenant-Governor. No rule can be laid down regarding this measure, which is left to local officers to arrange. It has been tried and found profitable. His Honour is not in favour of suggestion that selected headmen should be invested with magisterial powers under the Criminal Procedure Code. This indeed will be unnecessary when benches of headmen have been constituted with powers under the Village Act.

7. Finally, the Lieutenant-Governor has decided to exempt from capitation-tax the village crier (*ywazaw*) in every village of 100 houses and over, and one selected rural police man (ten-house *gaung*), or in Upper Burma the headman's agent (*ywagaung*), in each village of 20 houses and over.—[G1, Dep. Res. No. IV-II, dated 7th August 1917.]

[Madras.]

ORDERS ON THE REPORT OF PILGRIM COMMITTEE.

In 1912, the Government of India appointed Provincial Committees presided over by the Sanitary Commissioner with the Government of India to make a comprehensive enquiry into the possibility of improving sanitary arrangements at pilgrim centres. It was arranged that the Committees should submit their reports to the local Governments concerned and that, at the conclusion of the enquiries, the Sanitary Commissioner with the Government of India should draw up a report on the whole subject for the consideration of that Government. The report of the Madras Committee has already been communicated to all local bodies and officers concerned, and

G. O. 1535, Revenue,
6th July 1916.

G. O. 3039, Home
(Judicial), 18th Decem-
ber 1916.

G. O. 47 Plague, 26th
January 1917.

G. O. 1658 M., 21st
September 1916.

orders have been passed, as noted on the margin, on some of the matters dealt with in that report. The report of the Sanitary Commissioner with the Government of India has now been received and is communicated to all local bodies and to the Sanitary Commissioner and other officers.

2. The Committee made detailed suggestions in regard to matters under the control of Railway administrations such as accommodation, facilities for the booking of passengers, food and water-supply and conservancy. No general orders can be issued on these matters pending the further communication promised by the Government of India. In the meantime the Government would invite the attention of the South Indian Railway administration to the suggestion of the Committee in paragraph 11 of the report in regard to sanitary arrangements in railway carriages. The Committee, while

considering that the sanitary arrangements in railway carriages on the South Indian Railway are satisfactory, suggested that two sweepers with large drums of diluted antiseptic lotion should be attached to each train to keep the latrines in the third-class carriages clean. The General Traffic Manager states that the cleaning of the latrines can be done at the watering or engine-changing stations, but the Government consider that the cleaning is more likely to be done properly if a continuous conservancy service is maintained. The Railway administration is requested to arrange for this being done as far as possible.

3. As regards the supply of water to passengers, it is suggested that the water should be analysed periodically at the King Institute and that filters should be abolished, the water being supplied only direct from hydrants. In the year 1913 the Government directed the periodical examination at the King Institute, free of charge, of the water supplied to passengers by the South Indian Railway Company at refreshment rooms. Subsequently, however, in G. O. No. 49 L., dated 15th January 1915, they decided to discontinue the arrangement, the Director of the King Institute having expressed the opinion that the periodical examination of the water at practically every station was necessary in order to safeguard the health and comfort of the travelling public. The Government now consider that it is not necessary to go as far as this and that a scheme may be formulated under which periodical examination of water might be confined to that supplied at important stations where there is a large influx of passengers, the minor stations being left alone for the present. The Sanitary Commissioner is requested to report the arrangements which should, in his opinion, be made to give effect to this proposal.

4. It is suggested by the Sanitary Commissioner with the Government of India that arrangements should be made whereby civil authorities will assist railway administrations by conveying warnings as to the probable number of pilgrims

travelling in a particular year. Orders on this subject will be issued in the Public Works Department.

5. Paragraphs 21 to 23 of the report are devoted to the measures necessary for dealing with cholera infection at pilgrim centres. Defects in the existing procedure are severely criticized and two important recommendations are made. The first of these is that outbreaks of cholera should be much more carefully investigated than at present as regards their origin and that much greater detail should be recorded in the registers of medical officers. The Sanitary Commissioner is requested to submit proposals as to the form of record to be kept and to indicate the general lines on which investigation should be made regarding the origin of each outbreak. The second suggestion is that whenever cholera breaks out at a festival, the Sanitary Commissioner should be warned by wire, that he should be informed whether the affected persons are visitors to the town and, if so, that he should be given particulars as to where they come from and where they propose to go. This course should invariably be adopted. The Sanitary Commissioner with the Government of India promises a separate communication on the further suggestion that there should be co-ordination between the several Provincial Sanitary Commissioners in connection with cholera statistics. In the meantime the Government of India desire that the orders issued in their letter No. 2 Sanitary 91/99, dated 18th March 1891, should be complied with if this is not already done. It may be noted that in January 1891 this Government approved the suggestion of the Madras Sanitary Board that the Sanitary Commissioners of the various provinces should warn each other whenever there was any probability of the spread of cholera from one province to another and that it was at their instance that the Government of India issued the general order of March 1891 above referred to. The Sanitary Commissioner is requested to see that these orders are carefully followed. Attention has already been drawn in paragraph 4 of G. O. No. 1658 M., dated 21st September 1916, to the necessity of training medical

officers deputed for cholera duty in the modern methods of treatment referred to in paragraph 22 of the report.

6. The Government consider it desirable that the orders and instructions issued from time to time on the subject of the medical and sanitary arrangements to be made on the occasion of fairs and festivals and the suggestions now made by the Committee on the same subject in paragraphs 21 to 26 of the report, should be embodied in a compact pamphlet of rules and suggestions for the guidance of local bodies and officers concerned. The Sanitary Commissioner is requested to compile such a pamphlet and submit it for the approval of the Government.

7. The general recommendations of the Committee in part I of its report in regard to water-supply, medical aid and conservancy, are commended to all local boards and municipal councils for adoption as far as funds permit.

8. Part II of the report contains the recommendations of the Committee in regard to the measures necessary at individual pilgrim centres. The local bodies concerned are requested to examine these suggestions, frame programmes for carrying out such works as are considered necessary and submit reports to Government before the end of September, with proposals for financing the schemes proposed to be undertaken. [G. O. No. 955 L. dated 2-7-1917].

Review.

WE gladly welcome the seventh edition of *Collier's Municipal Manual**. Like its companion volume, *Collier's Local Self-Government Hand-book*, the *Municipal Manual* is a very useful publication. The former is a commentary on the Bengal Local Self-Government Act and deals with local administration; the latter is a similar com-

* *Collier's Municipal Manual*. By W. S. Milne, I.C.S., Calcutta. Messrs. Thacker, Spink & Co. Price Rs. 18.

mentary on the Bengal Municipal Act and deals with municipal administration. The Municipal Act, B.C. Act III of 1884, which, previous to the partition of 1905, was in force in old Bengal, remained in force after the partition in the provinces of Western Bengal and Eastern Bengal and Assam. When the territorial re-adjustments were made on the 1st April 1912, the Municipal Act remained unaffected by reason of the Bengal, Bihar and Orissa and Assam Laws Act, 1912. The Act, as amended by subsequent legislation now governs the Municipal Administration of Bengal, Bihar and Orissa, and Assam.

In the present edition of the Act, all the important Rules, Circulars, and Instructions issued by the Government of the three provinces have been embodied and brought up-to-date. The sections of the Act are fully annotated, and over 270 decided cases have been referred to besides numerous Proceedings of Council and Opinions of the Legal Remembrancer. The notes include references to English law. The Resolution of the Government of India declaring their Local Self-Government Policy is extracted in the Introduction, while in the Appendix are included several legislative enactments having a bearing on municipal administration. *Collier's Municipal Manual* is thus an indispensable book of reference to all those connected with municipal administration.

The present edition has been revised by Mr. W. S. Milne, I.C.S., who has utilised a large mass of matter prepared by Mr. Forrest, I.C.S., the author of "Indian Municipality."

Messrs. Thacker Spink & Co. are to be congratulated on the excellent manner in which they have got up a bulky volume.



The Local

Self-Government Gazette.

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[1917

Registration of Vital Statistics.

THE importance of securing an accurate registration of births and deaths in this country is now well recognised by all sanitarians, statisticians and administrators in general. But it is by no means certain that the general public has come to attach any importance to it. In the Madras Presidency the registration of vital statistics is compulsory in all Municipal towns. It has been made compulsory in a few selected Districts as well. In the rest of the Presidency, it is not yet obligatory on the head of a family to report changes in his family due to the accidents of births and deaths. But it is laid down as a special duty of the village headmen to maintain a register of all births and deaths that take place in their villages. This register is supposed to be checked at frequent intervals by the superior revenue officials. Monthly statistics compiled from these registers are published in the *Fort St. George Gazette* by the Sanitary Commissioner. Weekly returns of births and deaths are also published for a few of the bigger Municipal towns.

It has been an anomaly for some years that the returns of vital statistics in the compulsory rural tracts appear to be somewhat less accurate than the returns from the other rural areas. The exact reason for this anomaly has nowhere been clearly discussed or even investigated. But even in the most favourable regions there can hardly be any reasonable doubt that the present system of recording vital statistics is far from being efficient or accurate. Is it possible to devise better ways of registration than now obtain in the Presidency?

It is not enough merely to have a correct account of the total of births and deaths in the country. We require a more reliable diagnosis of the causes of deaths that take place in a given area. Such classification of the causes of death will be the raw material on which our sanitary officers will have to base their administrative and sanitary measures. They will serve to focus the attention of the Government and the public on the weak spot in the vital economy of the people. At present, simply because we are entirely dependent upon illiterate or half-literate village headmen, mortality is classified only under those obviously recognisable forms of disease, such as the epidemics of cholera, small-pox and plague, respiratory diseases lumped together, dysentery and diarrhoea and injuries or accidents, such as by snake-bite or wild-animals or by suicide or wounds. All other causes of death are lumped either under fevers or under all other causes. If we want to find out in what parts of the Presidency malarial fever is rampant, these statistics cannot help us. If we desire to know what ravages tuberculosis is committing in this Presidency and in what parts of it, we have absolutely no means of obtaining the necessary information. Diabetes is supposed to be a very fatal disease in this Province and is said to have a fascination for the most valued lives among our community. But if we want to get any statistics of this disease, we are helpless. Obviously there is a great need for improving our present system of classifying deaths according to their causes.

The Government of India observed in their Resolution on Sanitary policy, dated 23rd May 1914, that a comprehensive scheme for the improvement of general reporting is required. They invited the attention of the Local Governments to the importance of this subject, but the public are not yet aware if the subject has received the consideration it required and what the conclusions of the Local Governments were. But it is manifest that in the rural areas, so long as we have to rely on the untrained agency of the village officers, it is impossible to expect more accurate results and idle to hope for a more elabo-

rate classification of deaths. In these tracts we cannot for a long time to come substitute any other agency for the work. But can we say that the case is so hopeless in the towns?

The Government of India commended to the consideration of the Local Governments the following general propositions .—

(a) The reporting of vital occurrences should not be left exclusively to the municipal staff; reporting by the head of the household also should be insisted on. The two reports would then be available to check each other. *

(b) The actual registration should be done not as an extra duty but by special registrars, who should, if possible, possess a medical qualification.

(c) The registrar should be required to verify at least ten per cent. of the reported births and deaths and this verification should, as far as possible, include all particulars such as cause, date, age, sex, place, etc.

(d) The health officer should be in charge of the vital statistics in the town and should be responsible for supervising and checking the work.

(e) Experiments might be made in obtaining accurate registration in typical areas by means of a special staff which would also be employed in healing the sick.

We have no means of knowing whether these propositions have been adequately considered by the local bodies in the various provinces.

The most important point in these suggestions is the desirability of appointing medical men as registrars in municipal towns. This matter, we see from the *Bombay Government Gazette* of the 9th August, was discussed with the Commissioners of Divisions by that Government and they have decided to introduce the scheme in the City of Ahmedabad as an experimental measure. It is proposed there to establish a head registration office under the control of the health officer of the town, with a staff consisting of one

registrar and three clerks. The town will be divided into twelve sub-registration offices, each of which will be staffed by a clerk and a peon. The Government have agreed to undertake the cost of about six sub-assistant surgeons on a salary of sixty rupees per mensem for a period of three years, whose special function will be to diagnose the causes of deaths reported. The scheme is costly in its nature and cannot therefore be extended to other towns at present. But on the face of it, it appears to be well conceived and should prove a success.

In our Presidency a similar scheme had been put into force by the Madras Corporation even before the recommendations of the Government of India were received. In the place of the former untrained registrars of births and deaths, who were nothing better, in many cases, than unpassed clerks who would not be fit for employment in other offices, the Corporation appointed sub-assistant surgeons as whole time registrars.* We believe that they have been instructed not merely to aim at numerical accuracy in registration but also to pay particular attention to find out the actual causes of deaths. It would be interesting to have a comparative analysis of the results secured by these medical registrars with those obtained in the previous years. The Administration Reports do not give us full information but we are told that "a distinct improvement was observable" owing to the "better working of the medical Registrars."† The authorities seem therefore to be satisfied with the change in system.

Now it is worth considering whether some such improvement in the agency of registration cannot be extended to other towns in our Presidency. At least it is worth a trial

* The Medical Registrars were in charge of the registration of births and deaths. The number of *Conikapillays* employed was 20, one for each division of the city. These men were under the direct control of the Medical Registrars of the respective Divisions. Births are traced by *Conikapillays* by house to house enquiry in their Divisions and by enquiries of midwives. Reported causes of deaths are verified by Medical Registrars by interrogating the relatives of the deceased, by soliciting information by letter, and by personal interview with the medical practitioners who treated the deceased.

† Report of the Health Officer for the year ended December 31st, 1916.

in some of the bigger towns, such as Madura, Trichinopoly, Calicut, Coimbatore and Rajahmundry. It may not perhaps be possible to find an adequate number of sub-assistant surgeons for this duty. The number of such men is hardly enough to man the various dispensaries that have been established. But still there are several retired officers settled in these towns and there are several other private practitioners and it is a matter for consideration whether their services may not be requisitioned as honorary registrars, on payment of a small honorarium to undertake this duty.

If we remember rightly, some such suggestion was tentatively considered in the case of a few municipalities some time ago, but the public are not yet aware whether the scheme was given up or not.* There are of course obvious difficulties in the way of employing private practitioners. It may affect their private practice, it may bring them into undesirable collision with the health officers. But these difficulties are certainly not insuperable, if an earnest attempt is made to grapple with them.

Local bodies have an important duty to perform towards the Government in helping the latter to mobilise all the resources of non-official talent for the performance of necessary public work. Far from doing so, there is a tendency in these bodies to create more and more paid offices, whose incumbents intrench themselves behind the barriers of systematised routine, and make of themselves a lower kind of exclusive bureaucracy. The result is that too often, when a non-official comes forward to do some public work in an honorary capacity, he is apt to be looked upon with some kind of distrust and disapproval. On the contrary, local bodies should be on the alert to encourage and welcome local talent and put it to the best possible public use. Such a policy is especially necessary in the case of technically trained men.

* Under the new Madras City Municipal Bill, the Commissioner may pay a fee not exceeding a rupee, for each notification by a private medical practitioner of any "dangerous disease" under his care.

such as doctors and engineers. We have so few of such trained men in the country for the work which is required of them, that it is culpable neglect if we do not try and make the utmost possible use of the men we have. It is therefore incumbent upon the bigger municipal councils at any rate to take a census of the private medical practitioners and evolve a practicable scheme in which they can be usefully employed in furtherance of civic welfare. How far and in what capacities they can be employed in the matter of the registration of vital statistics, we do not presume to lay down here. These are details which have to be determined according to the circumstances of each locality by the local authorities responsible for the civic administration of those places. But we venture to draw the attention of these bodies to this question and hope they will seriously consider it in all its aspects.

Land for Houses.*

Part II.

[BY LORD LEVERHULME.]

(Part I appeared in the August issue of the Gazette.)

I NOW propose to show that the building by the Government of the additional cottages the nation needs is not a practical proposition. The Government has no machinery for dealing with such a question as the wholesale building of cottage houses. It is a most difficult and delicate matter of adjustment to place cottage houses just where they are wanted. There are, in addition, so many other things that go with the building of cottage houses, such as the provision of churches, chapels, Sunday schools, recreation halls, and so on. These are all matters which are much better dealt with by the community.

A Government Building Scheme.

I know of at least one building scheme which was undertaken by the Government since the war began. This

* Originally addressed to the readers of the *Liverpool Courier* and now revised by the Author.

was at Woolwich, for the provision of houses for that, at present, enormously congested district. An estate was laid out here by Government officials. It was done in the usual way of "turny-twisty" curves intended to look attractive, and which do look attractive—on paper. But the whole of this estate was built up without the provision even of a day school, and there was not a single site reserved for churches or chapels, Sunday schools, or assembly halls. Anyone coming from the centre of this district and wanting to catch a tram passing on the high road would have to go considerably out of the way and make a series of turnings in order to get to the main road, owing to the curves being made parallel to the main road and only connecting with it at the two ends of the estate. When I visited the place, children were having to go one-and-a-half miles to the nearest school. I believe the whole of this blunder arose through the instructions to the Government architect to plan for the building of 1,400 houses; and he received no instructions to reserve land for play-grounds, schools, chapels, or recreation halls. Consequently, he would have been exceeding his duty if he had made provision for these extra purposes, and had thus not carried out to the letter, as Government officials are expected to do, the instructions he had received.

Local Knowledge Essential.

Having made this criticism, I would like to add that these cottage houses at Woolwich are extremely well-planned and designed, and will make healthy houses for the people who live in them. I have mentioned this case to show, if the Government undertake a housing scheme for the whole country, that there are little pitfalls which will inevitably be encountered. The Government department is not adapted to deal with such a situation as has been created by the house shortage.

I have seen exactly the same sort of things in private life. I know a house built in a hilly district of Yorkshire by

a London architect at a cost of several thousand pounds. It is entirely unsuited to the surroundings in which it stands. In Surrey that same house would have been a poem and a picture. The unfortunate lady for whom it was built never could live in it in the winter, as the high wind drove the rain through the walls as though through a sponge. I understand that in these hills and dales of Yorkshire a certain type only of building material is suitable, and that the construction has to be done in a certain way, which has been discovered by the wisdom of ancestors working through the centuries.

It is not my desire to exaggerate these two instances; only to show that local technical knowledge is required in housing. My own experience at Port Sunlight of workmen's houses is that they must fit the tenant like a glove. I have known where houses had to be made in turning a corner a little larger than the usual pattern. We had always difficulty in letting such a house, and we finally met that difficulty by letting at 3d. a week less. The reason for the difficulty, I find, is that an extra yard in the width of a room means so much more work for the wife, who, with her many duties, especially where there are children, cannot afford to have her labour increased unnecessarily in the house.

Equally I believe that one type of house cannot be applicable to more than a limited area. Each locality seems to build up in the centuries a certain type of cottage which suits the people and their environment. This type is known in every shade of colour and variety to the local builder. These various local types could not possibly be known to a central organization somewhere in London who, acting on behalf of the Government, were preparing plans for 100,000 to 200,000 cottages, to be built more or less in a panicky way, to deal as promptly as possible with the present overcrowding.

Limit of Houses per the Acre.

I know that some of the writers in the very able articles published in the *Courier*, and which I have read with

great interest, have taken exception to the limitation of houses to some 10 or 12 to the acre. From my experience I believe that this limitation is absolutely essential. There ought to be an area of grass between the house and the footpath, so that dust will not reach the open windows in the heat of summer, and that there will be a little grass foreground to the house. Equally there ought to be allotment gardens at the back, so that the tenant can fill in odd half-hours before or after meals, or in the early morning or late evening, in a garden. This means both recreation and health, while in many cases the produce of the garden will actually pay the rent. This is a very important matter, as this increase of food supplies would be of the greatest value to the nation. These small plots would enable tenants to keep poultry, and then eggs would cease to be a luxury. It is comparatively easy, with a small allotment of this kind, to make through poultry and vegetables 4s. a week; and I know of many cases where this has been greatly exceeded. In addition there is the question of the provision of institutions and playgrounds for the children, and so on. Altogether, therefore, I am strongly of opinion that house-building should be limited to, not exceeding 10 to 12 to the acre, and estates should be laid out on this plan.

Town Planning by Local or Central Authority.

I believe that a central authority, either municipal or governmental, can best deal with the laying out of the estates, although entirely unfitted for the building of the houses on the estate afterwards. But they are fully equipped by experience and knowledge of the problem derived over many areas to lay out land as building estate, so that when the land is given free for house-building, the work may be undertaken on a well-thought-out plan. I know of many borough engineers and surveyors who would agree with me in this. Therefore, while I am opposed to the municipality or government undertaking the wholesale building of cottages, I am strongly in favour of the municipality or government

drawing a Town Planning scheme for the erection of cottage houses on broad lines before they permit a single cottage to be built.

Good Housing means Good Citizenship.

The nation is to-day faced with a great opportunity for bringing about a reformation in the matter of housing. Courage and an enlightened policy must go hand in hand to work for the national good. I speak from experience when I say that nothing elevates and raises a man, his wife, and family so much as placing them under the most favourable conditions with regard to their homes. This is especially true with regard to the children who are growing up. It is simply ludicrous for us to spend over thirty millions sterling a year in educating the young whilst, at the same time, a very considerable proportion of them are compelled to live in houses and under conditions which absolutely neutralize all the benefits to be derived from education. We hear it sometimes said that the result of our free education is not everything that we expected, or that we were justified in looking for. May not the cause be, not in our system of free education, not in the people themselves, but the method in which the majority of them are housed? To raise the tone of the mind by education and to cultivate the intelligence by reading, then to force back both body and mind to live amidst squalor and under the most wretched conditions, can only have one result—the neutralizing of any good effects that would otherwise have resulted from our well-intentioned but misdirected efforts.

Danger to be Guarded Against.

The housing problem has now reached an acute form. The solution of that problem may prove to be the greatest step ever taken towards remedying the evil of overcrowding and putting an end to slums. But the Government in approaching this matter must look well ahead. One of the most serious dangers of the Government undertaking the building, or even the direct financing of schemes, as has been

proposed by well-intentioned but inexperienced benevolence, is that such action would absolutely check and prevent any building being undertaken by private individuals. That being the case, instead of the housing problem being reduced, it would be an ever-increasing one, and the dearth of cottages 20 years hence would be as great as ever, unless the Government were going to carry the whole burden of cottage building. Certainly, the local builder would, if he built in competition with the Government scheme, lose money. He would have to make good in his taxes and rates for the mistakes and ignorance of the Government, and if he made money his profits would in the form of income tax, on a rapidly increasing scale, be taken from him to pay for the mistakes of the Government.

The Paris Exhibition of the Re-Constituted City (1916).*

(EXPOSITION DE LA CITÉ RECONSTITUÉE)

[BY PROF. PATRICK GEDDES, EDINBURGH, SCOTLAND.]

“THE Cities and Town Planning Exhibition,” now becoming known under the shorter, more human and more accurate title of “Civic Exhibition,” had been in India during the winters of 1914-15 and 1915-16 at the invitation of three Presidency Governments. It was held at Madras, Bombay, Calcutta, and later at Nagpur and Lucknow, the capitals of the Central and United provinces, respectively. Its director was reporting on cities, and advising on town improvements and extensions, when a request came from the Comité Supérieur of the Exposition de la Cité Reconstituée in Paris to share in this exhibition in the summer of 1916 by exhibiting the whole or part of its collections.

The original collections of the exhibition had been destroyed on their way out to India in October 1914 by the

*Reprinted from the (American) National Municipal Review.

famous *Emden*, which met the vessel on which these collections were being carried, and sunk it in the Indian Ocean with all its cargo. It was a serious loss, as the collections represented much of the work of twenty years or more, and many of the documents were irreplaceable. Nor did the insurance cover war risks. Moreover, the first exhibition in India was to have been held a month or so from the date of its destruction. Members of the town planning institute in London, Edinburgh and elsewhere set to work with admirable promptitude and energy to gather new collections; and generous aid was forthcoming also from colleagues in America like Dr. Nolen and others. An exhibition, smaller of course, but not without value, was held in Madras in less than three months; and since then with each subsequent exhibition further reconstruction has been in progress.

After this experience the transporting of the best of the renewing collection once more across the seas in war time was not without risk; but the documents reached Paris at the end of April 1916, a few days before the date announced for the opening of the Exposition de la Cité Reconstituée. It was not surprising, however, to find that owing to war exigencies the preparations for opening were still far from complete. Even under ordinary circumstances exhibitions are apt to be late; and when we consider those under which the idea of this Paris Exposition of 1916 was conceived, and the difficulties of innumerable kinds in carrying it out, we cannot but regard it as one more amongst the many indications of the energy and vitality of the French, of their power of co-ordination, above all of their farsighted and generous social outlook.

It was planned and held when the enemy was still only some sixty miles from the gates of Paris, and holding a portion of France more than equal to the whole of Belgium, and while the terrible struggle of Verdun was at its fiercest, the Germans gaining ground there, and threatening to break through the French defences. Every available man of fight-

ing age was either at the front or otherwise employed in war work. Scarcely a family but was mourning their men already fallen on the field. The exposition, too, suffered from the absence at the front of architects and others who would have rendered good service ; as also from the inevitable cares and preoccupations of those promoters who remained on the spot. Workmen were scarce ; materials, such as wood for temporary constructions, were hard to find. Nevertheless, the exposition was useful, as an education to the general public and to specialists of various kinds ; and above all, it was a triumphant demonstration, alike to allies and enemies, of the courage and confidence of France.

Under the auspices of the Government.

The draft programme announced that the exposition was organized by the *Association Générale des Hygiénistes et Techniciens Municipaux de France et des Pays de Langue Française*, under the ægis of the Republic, with the patronage of the ministries of commerce, of industry, of agriculture, of education and fine art, of labor and of the interior ; of the general council of the Seine and municipal council of Paris ; and of the committees for housing and social welfare and the like. Its working nucleus was well constituted, of architects and planners, men of affairs, of politics and government ; and its composition included at once a strong representation of regionalists, from Brittany to Provence, as well as eminent Parisians. Of their working president, M. Georges Risler, much might be said, and all appreciatively.

The site of the exposition was well chosen on the Terrace of the Tuileries adjoining the Place de la Concorde, easily reached by underground railways and by tramway from both sides of the Seine. Most of the buildings were temporary constructions except the central one of the old "*Jue de Paume*." In this were exhibited plans for the reconstruction of Rheims and other towns and villages in the war zone, as well as of foreign towns by skilled and scholarly French architects and municipal engineers. There were

also photographs and drawings of some of the destroyed Flemish towns, with plans for the reconstruction of their ruined quarters and public buildings.

Around the central building were examples of building materials and constructions in wood, in various kinds of cement, plaster, terra-cotta, etc.; some separate, or in street rows, some grouped as model villages. The exposition showed altogether 40 of these model houses costing from 1500 francs (\$300) upwards. There were of course the usual business exhibits by firms of cabinet-makers, electricians and other house furnishers, agricultural implement manufacturers, and so on.

The Quaker Contribution.

One of the most interesting and congruent exhibits was that of the English Society of Friends (Quakers), whose war victims' relief committee has for the past two and a half years been engaged in reconstruction work in the departments of the Marne and Meuse, from which the Germans were driven back in September, 1914. This exhibit took the form of a wooden hut of three rooms, such as the Friends have been building in great numbers for the inhabitants of the villages and small towns wrecked by the Germans. Inside the little dwelling were plans of these villages and towns indicating the houses totally or partially destroyed (in some cases scarcely a single one was left standing), and those rebuilt by the Friends' committee. There were also photographs showing other branches of their work, such as medical relief, distribution of agricultural implements, seeds, etc., of clothing and other necessities; temporary schools and work rooms, with specimens of needlework for sale.

Village Plans.

An important feature of the exposition was the competition, open to all architects, French and other, for the best village plans, for which prizes were offered. The competitors, of whom there were twenty-five or more, were supplied with plans of three types of ruined agricultural villages, large and

small, chosen from different regions and with varying situations and needs. The competitors were of varied points of view, from the most urban outwards. Some were extreme Parisians—must one say even to cockneyism?—of the type which prevails in every great city; projecting the boulevards, places, rond-points of Paris, even the Etoile itself, upon the village, which was thus effaced beyond recognition as a village altogether. Others there were with all degrees of practicality, up to rural commonsense. But in general, for villages as for cottages, with of course creditable exceptions, the idea was not clear enough to most of the competitors, that the peasant requires a homestead, a working farm-center, and not merely that pleasant suburban retreat to which the city dweller, his work over, looks forward to retiring.

The Cathedral Quarter of Rheims.

The proposals for the cathedral quarter of Rheims were too much influenced by Paris. They tended to repeat the errors of the Second Empire, and those of the earlier German town planners with their excessive opening up, in front of Notre Dame and all around Cologne Cathedral. The Germans before the war, awakened to this error, were organizing competitions for building up again around their cathedrals, and so restoring them to their former scale and majesty. For thus, instead of being left isolated upon an empty place, like a head on a charger, like bric-à-brac upon a table, or like a model on a museum floor, they will again appear soaring above the homes grouped around them, presiding over, protecting, inspiring their city.

So far these two criticisms, of country plans and city ones. But one of the great uses of our exhibition is to provide an opportunity of making mistakes like these of village and cathedral in their experimental phases, while there is still time for criticism and improvement, instead of the commoner method—that of half-considered execution first, and useless criticism after the fact.

An excellent and varied programme of lectures was provided on civic subjects ranging from public sanitation, rural and urban, to the æsthetic and social aspects of town planning. It included also regional studies of the French provinces, Alsace-Lorraine, Brittany, Provence, Auvergne and many more. Peripatetic lectures (*promenades-conférences*), too, were organized; and all this again with fitting leadership, not only antiquarian, artistic and architectural, but embracing at once the best geographers of France, all now regionalists to a man; and the small but growing group of politicians who are working to renew the too much lost lesson of 1870-71; that of slackening the excessive cerebralization of Paris, and renewing the life of the old provinces, recombined as natural and economic regions, and each around its provincial capital and university city.

Parties of school children were admitted free of charge under the direction of their teachers or other guides. Members of municipalities and other city officials came from afar. A special invitation was sent by the comité supérieur to the lord mayor and council of Dublin, who at the time were preoccupied by the question of replanning and rebuilding the areas destroyed during the Sinn Féin rising at Easter of last year. The lord mayor, city architect and several councillors accepted the invitation, and a cordial meeting took place between them and their Paris colleagues.

So much for the bulk of the exposition; our own section, that of the civic exhibition, was of more general scope than any other. It consisted of a type-collection of graphic illustrations bearing on the life of cities, and on their constructions considered as expressions of this civic life. It was arranged as a basis for the scientific and comparative study of cities past and present, and for relating to each the conception of the "city possible."

Plans of Ancient Cities.

Plans and drawings of ancient cities, of Egypt, Israel, Greece, Rome, of mediæval and renaissance times led on to

those of the modern industrial age, and supplied that historical perspective needed to correct the view too limited to our mechanical age of town planning and city improvement which is still so characteristic of both the city engineer and his lay public. Without such preliminary study, our town planners overlook elements of vital importance, material as well as moral, to the life of the community for which they plan, and thus have too often impoverished and degraded their towns instead of enriching and ennobling them.

The influence of wars on the congestion and consequent deterioration of cities was exemplified in a series of old prints and plans of Flemish towns, Ypres, Dixmude, Ghent, etc. Yet with all these tragic records the opportunities of renewal also were not forgotten.

The too narrowly utilitarian character of the town planning of the earlier modern industrial period, with its accompaniments of squalor and degradation of the worker and his family, were only too easy to illustrate; but happily also the garden villages and garden suburbs characteristic of the later industrial developments. It is of the greatest importance to distinguish between these two phases of the industrial age. Just as we recognize in the stone age the two great periods of paleolithic and neolithic, of rough stone and polished stone implements respectively; so in the industrial age we must distinguish on the one hand the earlier, ruder industry characterized by coal and steam, and the making of cheap products and cheaper people crowded into ever spreading, ever dirtier and smokier towns,—the paleotechnic period as we may call it. On the other hand we are entering upon the second stage, the neotechnic, characterized by electricity, by finer industry, by more skilled and educated workers, by cleaner towns with parks and gardens and playgrounds all of which are important factors for survival in the struggle for existence of a community.

Congestion.

Examples of the plans of Indian cities showed overcrowding, and consequent disappearance of open spaces,—gardens,

parks, squares—as in the West; with the accompanying evils of depression, dirt and disease. The remedies for this congestion by “conservative surgery,” *i.e.*, demolition of the less valuable property and consequent opening up of crowded quarters in more economical fashion and with less hardship to the inhabitants than by wholesale destruction, were also indicated. In many cases the plans revised yielded economies rising from three-fourths to five-sixths or even nine-tenths over the original ones.

Examples of regional survey as applied to cities great and small illustrated the growth of London from Roman times. A more detailed study, geographical, historical and social of Edinburgh as a complex typical city further demonstrated the usefulness and even necessity for such a preliminary study preparatory to replanning, on the principle of diagnosis before treatment.

Regional Surveys.

Other regional surveys, on a simpler scale, had been carried out by schools and colleges, primary, secondary and higher; and afforded illustrations of how geography, history and other subjects may be taught in a concrete and living way; while at the same time developing that early acquaintance with and interest of the child in his village or city, which is the best training for citizenship.

This regional survey movement is rapidly growing. Its provisional committee formed two or three years ago has developed into a regional survey association with separate branches for education, for archæological and scientific research, for the co-ordination of naturalist societies of all kinds, and now for civics and town planning also. A world-wide appeal may shortly be made to educationists and to the wider public; for this conception of survey for service harmonizes and unifies all systems of education—the classical and historical with the modern and scientific, the technical with the ethical. Towards this end the efforts of regionalists even in France are still but half consciously directed.

But with the approaching reorganization,—mainly after the war, yet as movements like this exposition show, already fully begun—the renewal of education on this basis of survey, and with this outlook and purpose of service, will become clear, and this in thought and policy alike.

But as yet the most important outcome, the main result of the Exposition de la Cité Reconstituée, has been the grouping which was coming into being as it closed, and which is its real continuator and successor—the formation in Paris of a school of public art and town planning (*Ecole d' Art Public*). Here the organizing leader is M. Patris, a distinguished Belgian architect; who, though a simple alien and refugee without wealthy or official backing, has collected in the course of the exposition promises of teaching help and part time service, all of course unpaid, from no fewer than some seven and thirty colleagues, like the guidance by the French painter of his pupils, or the services of the hospital physician everywhere.

Such an organization is itself at once the best example of the civic movement, and the evidence that its leaders are forthcoming. And what was done last year in Paris, as queen of art and inspirer of cities, may and will be done in cities everywhere.

Resources of Local Bodies.*

[BY THE HON'BLE RAO BAHADUR G. K. SATHE, C.I.E.]

THE several subjects on which discussion is invited by the organizers of this Conference may be divided into three different main heads (1) constitution of Local Bodies, (2) their powers and functions, and (3) their resources. I propose to deal in this paper with item No. 3. But as item No. 3 has an intimate connection with the functions of the Local Bodies, it will be necessary to take account of the several functions of these bodies. I intend to confine my remarks principally to Municipalities. As regards

* Paper presented at the First Bombay Local Self-Government Conference (Poona) on 25th July 1917.

Local Boards, the Committee appointed by Government in 1915 and of which I had the honor of being a member, has considered this question at some length. If a liberal constitution is indispensable for making progress in Local Self-Government, substantial improvement in their resources is even more important to make Local Self-Government a complete success.

In order to understand how their responsibilities increased ever since the creation of these bodies, it is necessary to take a short resumé of the several enactments bearing on the question.

The first enactment was Act XXVI of 1850, the object of which was to appoint Local Committees to make better provision for making, repairing, cleansing, &c., any public street, road, drain or tank and for abatement of nuisances. It was of a very elementary nature and contained no general standard by which each Municipality was to frame rules so that what was a tax in one part of the Presidency was not so in another and what was a nuisance in Ahmedabad was not a nuisance in Poona or in Sholapur. This Legislation was followed by Acts I and IX of 1862. The additional duties of supporting hospitals, dispensaries and schools were imposed by these Acts. They were not to spend more than 25 per cent. of their revenues for all or any of the purposes aforesaid. These Acts were followed by Act I of 1871. This made the District Municipalities pay up to 20 per cent. of their revenues towards supporting the Police of their respective places. It must be stated here that Municipalities are relieved of this obligation of paying for Police charges ever since Act II of 1884 was passed. Then followed Act VI of 1873 which imposed still more obligations on these bodies.

Lord Ripon's Government in 1882 carried further the principles of Local Self-Government with the object of inducing the people themselves to undertake, as far as might be, and subject to the control from without, the management of their own local affairs and of developing and creating a capacity for self-help in respect of all matters mentioned in the memorable Resolution of 18th May 1882. To carry out the policy enunciated in the last mentioned resolution the Bombay Government passed Act II of 1884. The principle of election was recognized and the old Section 24 of Act VI of 1873 was enlarged upon and many new obligatory duties were imposed upon Municipalities. To these were added some discretionary duties also.

The attitude of the Bombay Government was not as liberal and sympathetic as that of the Government of India. The Bombay Government looked at this subject of extension of Local Self-Government as if it meant decentralization of some of the duties of the Central Government.

This last enactment was superseded by Act III of 1901 which now governs the Municipal administration of this Presidency. More duties were thrown on these bodies than they were expected to discharge efficiently. They were, moreover, such as these bodies were not financially or otherwise competent to perform to satisfaction.

Sections 54, 55 and 56 may with advantage be referred to. Even a cursory glance at the several duties (obligatory as well as discretionary) would carry conviction to any one conversant with Municipal administration, that it is impossible to carry out even a majority of them in the present crippled financial condition of several Municipalities.

It may be truly said that these bodies are the guardians of health, education, conservancy, &c. Enumerating their functions in fuller detail, we find that the Municipalities are entrusted, *first*, with the duties of construction, upkeep and laying out of streets and roads, and the provision and maintenance of public and Municipal buildings; *secondly*, with the preservation of public health principally with reference to sanitation, drainage, water-supply, provision of medical relief, vaccination and such other measures against epidemics: and, *thirdly*, with education; one has to enumerate these functions and contrast their wide range with the extremely meagre character of their resources and to realize how unequal these resources are to the proper performance of these functions.

The percentage of the people living in the Municipal Districts is nearly 12 per cent. of the total population of the Presidency proper. The Central Government is interested in the health and general prosperity of those living in these areas and it must be realized that government of a town or city could not be a matter of interest and concern to the inhabitants of that particular locality alone, but should be a matter of concern to the Central Government also. Unfortunately, the Royal Commission on Decentralization considered this question of resources most perfunctorily and therefore this subject received the scantiest attention from them. However, the

little evidence that came up before that Commission establishes the insufficiency of the resources of these bodies. Sir Herbert Risley said in his evidence: "It must be admitted that the resources of District Boards and Municipalities are not sufficient to enable them to work up to modern standards of administration. In Municipalities this is most conspicuously the case." The late Sir John Jenkins (once a member of the Local Executive Council) said that the resources were extremely meagre, and added that they must be largely increased if local self-government was to be a success. Sir James Meston and Sir Reginald Craddock strongly advocated the increase of resources of these bodies. In the face of this clear evidence and in view of the pressing needs mentioned above, it will be a mere waste of time to make any further and elaborate attempt to prove that the Municipalities do want more money. The questions are, how to get it, whether Municipalities are doing their best, and whether Government ought to contribute more and, if so, in what way it should contribute.

A plentiful and wholesome water-supply, efficient drainage, the opening up of insanitary and congested areas, improved conservancy arrangements, widening of narrow roads, hygienic school buildings with adequate play-grounds, are among the most pressing and general wants of the more important towns. The wants of smaller Municipalities include sanitary conveniences, office buildings, dispensary-buildings, markets, slaughter-houses, street-lighting, surface drainage, better school-houses, &c. It is true that because of the recent liberal policy of Government in the matter of loans and grants, most of the large towns are provided or are on the way of being provided with a plentiful and fairly wholesome water-supply.

I thought of enumerating these needs at greater length because in the absence of any adequate idea on this point one would find it difficult to thoroughly appreciate the remarks in the following part of this paper.

When we make a demand on Government for greater subventions and when we wish them to transfer to local bodies certain items of revenue in part, it is but right that we should examine our own house and see whether it is in proper order. With this object in view, I append the accompanying table in which are shown items of receipts and expenditure for the year 1885-86 and for years 1910-11 to 1914-15. This table refers to the three

TABLE I.
*Statement showing the total income and expenditure in the Bombay
 Presidency excluding Sindh.*

Year.	Grand total of Income. Rs.	Grand Total of Expenditure Rs.
1895-96	22,84,010	23,89,109
1910-11	68,05,909	68,68,446
1911-12	75,37,024	71,90,601
1912-13	76,08,227	79,01,273
1913-14	88,09,279	84,00,305
1914-15	85,02,014	85,08,680

TABLE II.

Statement showing the Expenditure of Municipalities in the Bombay Presidency excluding Sindh.

Division.	Year.	General Adm. and collection charges.	Public Safety etc.	Water supply.	Drainage.	Conservation	P. W. D.		Public Instruction.			General Contributions	Total.	Expenditure and Debts.	Grand total.
							Buildings.	Roads.	Schools Colleges.	Contributions.	Libraries and Museums.				
Central.	1885-86	126244	53799	64268	23676	203462	39523	75482	101837	5437	3245	155	964694	130315	1095009
	1910-11	212174	107010	189782	37483	304116	49859	207185	333624	5437	3245	11579	1760929	320923	2091852
	1911-12	228132	111818	160400	324559	343717	48638	233944	342776	14083	3268	15520	2216638	339647	2556275
	1912-13	262116	126461	403740	292709	379289	60183	198992	417406	4514	3106	9598	2387310	157186	2744496
	1913-14	244047	132728	680760	240769	383820	59082	203679	449703	5020	3482	8001	2347832	341479	3139311
	1914-15	254118	129276	380158	316668	385265	42118	266653	420772	6322	3527	14294	2765754	210460	2976214
Northern.	1885-86	93263	79277	21671	1897	313818	41035	141015	86409	14331	3225	5585	811445	114816	926261
	1910-11	179281	144783	200098	84584	408254	33949	324061	299604	17905	3696	10899	1976542	1490353	3466895
	1911-12	207023	153902	338851	89768	433339	33717	261841	315111	17005	3791	8310	2229918	1162917	3392885
	1912-13	206367	152761	462100	90180	453302	39986	494195	388034	17023	3791	5786	2661040	1051164	3712204
	1913-14	207963	171291	302484	81388	470393	35137	275558	373901	17490	4122	6591	2301235	1465196	3766421
	1914-15	238870	204476	596002	91787	512904	62406	307271	426851	12593	4017	6697	2845514	1390183	4236697
Southern.	1885-86	47394	17673	31866	1973	74258	16802	28155	70924	2298	542	1472	347492	20347	367839
	1910-11	99118	46927	447758	7389	121183	21681	72957	251610	2298	542	1472	1321117	88528	1309399
	1911-12	98253	44203	268709	9538	129225	13927	89056	262638	1768	288	2496	1068001	173490	1241491
	1912-13	100917	53552	261329	40803	139813	14650	113343	270253	2240	775	3537	1154429	290144	1444573
	1913-14	114563	53745	232527	21344	147030	14160	169834	277447	3479	827	3836	1251301	93113	1344423
	1914-15	120554	53809	123762	28395	115072	56990	117017	320338	20893	983	3198	1205255	90514	1295769

Divisions of the Presidency and not to Sind. The receipts under the heading "Rates and Taxes" establish that Section 59 of the Act, which authorises Municipalities to impose taxes, has been freely used. The income of Municipalities during the last 30 years has increased from 100 to nearly 375 per cent. and the expenditure has grown almost in the same proportion. Incidence of taxation per head of population has risen from Re. 1-0-6 to Rs. 2-1-4. Incidence of income per head of population rose from Re. 1-6-5 to Rs. 3-3-8. This result is a clear evidence of the general recognition by municipal bodies of a higher standard of comfort, convenience and sanitation and of a sincere desire to make provision for meeting the obligations which this higher standard imposes. Some part of the increased expenditure is purely due to high wages and continuously rising cost of living. On account of this, though there is a substantial increase, the whole of it is not spent on the real needs. This has been so acknowledged by Government in their Administration Report for the year 1913-14. This recommendation of Government is certainly very encouraging but to deserve it in a greater degree we ought to be doing more. Municipalities on the whole do not seem to have realized the principle, that water and conservancy services should be self-supporting. In order to put this principle into practical working, Government have recently made it compulsory for Municipalities to keep separate accounts under this head, so that deficit could at once be noticed. The principle which I advocate is that water-rates that are levied must be, as nearly as possible, equal to the sum that may be required for the maintenance of water-works. Private water service charges ought always to be regulated by the convenience and accommodation of those that pay for them. Another object of imposing heavier rate for private water service is to check excessive and wanton misuse of water, and where every gallon of water is to be paid for by the local authority, it is but quite necessary that the charges should be recouped by general and private water service rates. In 1885-86 the income from water-rates was Rs. 60,310 and the expenditure for the same year was Rs. 1,17,825. The income for 1914-15 was Rs. 7,82,470 and the expenditure for the same year was Rs. 11,02,922. These figures will, I believe, justify the truth of my observations.

Similar is the case under the head of conservancy. The income from conservancy rates and from conservancy receipts taken together

for the year 1885-86 was Rs. 2,07,848 and the expenditure for the same year was Rs. 5,88,538. The corresponding figures for the year 1914-15 are Rs. 4,15,558 for income against Rs. 10,43,241 for expenditure. Thus it is obvious that the money spent in excess of the receipts is availed only at the cost of other important matters, and the effect of it is that other essential things are practically neglected. To mention an instance of the kind, one has only to take into account the expenditure on roads. There is not available any information as to the total length of roads in Municipal Districts. The amount expended on roads in the year 1914-15 is Rs. 6,90,941. Taking the average cost, on a modest scale per mile, for the maintenance of a road to be five hundred rupees a year, we get only 1,382 miles of road repaired during the year. This figure bears a very small proportion to the entire length of the roads in all Municipal Districts. Those of us who spend their lives in Municipal towns, big or small, will undoubtedly be able to draw to themselves a very good picture of the deplorable and miserably bad condition of these roads. In fact their condition may better be imagined than described. There is a general cry about the bad roads in this city (Poona). Poona need not feel sorry for it. It does not stand alone in this respect and many mofussal cities and towns may vie with each other to take the first rank in this respect. It is true that there is more wear and tear for roads in the cities but this is only an additional reason for more money being required.

There is one item of taxation which is not generally availed of in this Presidency. In Madras, Bengal and the United Provinces there is a tax on professions, trades and callings. In towns and cities there is a body of traders whose income is not assessable to income-tax but who make their living on petty professions and trade. There is no reason why Municipalities of this Presidency should not follow the example of Madras.

The system of Octroi is in vogue for a very long time. Its imposition is practically sanctioned by immemorial usage. This tax is usually paid in small amounts and the people paying it do not feel it as a burden, especially because it is not direct taxation. As a tax, octroi is productive and grows with the prosperity of towns. The income on this head is very appreciable. The schedule of articles assessable and of their rates requires revision. This tax is intended to be replaced by a "Terminal Tax." One of

the conditions mentioned is that the Terminal Tax wherever imposed should be substantially lower in its rates than the octroi which it replaces. This being the principle, the substitution of "Terminal Tax" will necessarily reduce the income under this head. In the present financial condition of the municipalities this experiment which is followed by a few municipalities needs to be watched with care before others think of adopting it. That the rental value of property in urban areas is steadily increasing is an admitted fact. This being so, scrupulously rigid revision of assessment lists will substantially contribute to the revenues of municipalities. In this connection it may be observed that different methods in the matter of appeals etc. obtain in different municipalities and unless a thoroughly disinterested and impartial attitude is exhibited by Municipal Councillors, who form the revising body, increase on this head of the income will not occur. This may not be taken as amounting to want of trust in the revising bodies but the suggestion is made purely to avoid an apprehended danger.

No people take to taxation cheerfully. We Indians cannot profess to be an exception to it. The principle of local taxation is different from that of the imperial taxation in as much as the former is imposed by the people themselves and inasmuch as its realizations are spent in the local areas. If, therefore, Municipal Councillors take account of this fact and take a broader out-look of things, I have every hope that the day will not be distant when Municipal Administration will make material progress in all its departments and will supply all its needs. After having touched this point I turn to the third point as to what we expect the Government to do.

The Government of India in 1881 invited Local Governments to undertake a careful scrutiny of Provincial, Local and Municipal accounts with a view to ascertain (1) what items of receipts and charges could be transferred from Provincial to Local heads for administration by Committees of non-officials and what items already local but not so administered, might suitably be so transferred; (2) what redistribution of items was desirable, in order to lay on local and municipal bodies those which are best understood and appreciated by the people; and (3) to find out ways of equalizing local and municipal taxation throughout the Empire.

It will be convenient to quote here paragraph 21 printed in the *Bombay Government Gazette*, 1882, at page 412 :

“ In the orders of the 10th October last, the Government of India laid special stress on the importance of entrusting to the local boards, not merely the expenditure of fixed allotments of funds, but the management of certain local sources of revenue. Sufficient regard does not as yet appear to have been paid to this part of the scheme. Not only should every local board have the entire control over the proceeds of all local rates and cesses levied within its jurisdiction for its own special purposes, but along with the charge of any expenditure, that is at present provincial, should be transferred, where possible, the management of equivalent revenue. The License Tax assessments and collections, for example, might very well be made over to the Local Boards, Municipal and rural, in many parts of the country, subject to the control provided by the existing law. Pounds and Ferry receipts have been already indicated as suited for transfer. The allotment of lump grants from Provincial Revenues should be reserved as much as possible, to balance the receipts and expenditure of the Local Boards. The Governor-General-in-Council hopes that this part of the scheme will receive very careful consideration from all Local Governments, with a view to giving full effect to the policy which the Government of India has laid down on this point.”

It will thus be seen that it was then intended by the Government of India to place larger funds at the disposal of these local bodies. Has that been done is the question before us.

In addition to educational grants, the Bombay Government was then prepared to entrust to the Local Bodies the assessment and collection of License Tax. One half of such assessment was to be credited to Imperial Revenues, the other half being credited to Local Bodies.

The officers of the Government of Bombay recommended in 1882 the following items for being handed over to Local Bodies :—

(1) All ground rent now credited to Government, the sale-proceeds of land sold for non-agricultural purposes and all fines and penalties paid for converting land to such purposes.

(2) Local funds cess on Abkari contracts.

(3) Larger proportion of the increase of land assessment derived from revised Survey Settlements.

These proposals were not then accepted by Government and matters were allowed to drift in an unsatisfactory manner. Thirty-five years have since then passed ; new ideas are dawning upon us, responsibilities of administration are increasing and expenditure is

fast out-running the revenues. Under these changed circumstances may we not expect that Government should be prepared to reconsider this question with a liberal and sympathetic attitude? Government is as much interested in the development of urban areas as the Municipalities are. If cities and towns develop, as they are showing decided signs of developing, it means additional revenue to Government in the form of Abkari revenue, income-tax, stamps, court fees, etc. It is therefore legitimate that Government should come forward to give some definite proportion of these revenues collected within the jurisdiction of each local body. At present the Municipalities do not get any ground-rent on land situate within their areas, while on the other hand they are required to spend heavy amounts to make roads, lay pipes and make all conservancy arrangements in such newly developed areas. In the Legislative Council of March 1916, I moved a resolution on this subject which was unfortunately lost.* But I feel confident that if persistent efforts are made by several Municipalities to press their claims for a share in this source of revenue, they are likely to succeed.

The Committee appointed by Government in the case of Local Boards in 1915 unanimously recommended that District Boards be granted a share in certain expanding revenues preferably the excise and land revenue. This is a recommendation made by a body which had amongst its members Revenue Commissioners of the three Divisions and I have every hope that Government will give proper weight to this recommendation of the Committee. So far as the Municipalities are concerned, their case does not in any way differ from that of Local Boards. Proportion of Abkari revenue will be greater in urban areas than in rural areas though in the case of land revenue the position will be the reverse. I need not attempt to support the demand for a share in the Income Tax, as we find that the Government of India were prepared to give, so early as 1881, a share of License Tax which was replaced by the more comprehensive Income Tax. It is a matter for regret that since then Government, Imperial or Provincial, were not able to translate this principle into action.

It is agreed on all hands that real efforts should be made both by Government and the people, to foster a genuine spirit of Local

* Vide *Local Self-Government Gazette*, Vol. II, p. 449.

Self-Government in India and that result will not be achieved unless and until the financial position of these bodies is substantially improved by assignment of certain revenues and by continuance of the granting of grants on a liberal scale.

During recent years, Government has been giving munificent grants to Municipalities but they are given as "doles" and besides they are non-recurring grants. Moreover, these grants are paid to such of them as manage to press their claims with success upon the attention of Government.

The recurring grants are paid towards the cost of Primary Education and of Health Officers' and Sanitary Inspectors' salaries. The proportion of help on the latter head is 2 to 1 and it is no doubt a fair proportion. In the case of Educational grants, they had promised that they would be $\frac{1}{2}$ but in many cases since April 1912 they fall short of that fixed proportion by a little over 10 per cent. as no revision is made every year. Primary education was transferred to Municipalities in 1884.

Since then the expenditure has increased by more than 400 per cent. and when the Hon'ble Mr. Patel's Bill passes into law, it will still grow.

There is no other matter of such vital importance as Primary Education and Government ought to contribute two-thirds of the total expenditure incurred by those bodies on this head. The Government of the Punjab has accepted this principle very recently.

The late Hon'ble Mr. Gokhale also stated in his speech on Elementary Education Bill in 1912 that the burden of all future extension should be shared between the Government and Local Bodies in the proportion of 2 to 1. Mr. Gokhale further pointed out that in England the total taxation is divided nearly half and half between the Central and Local Governments, that in France the State takes three-fifths and Local authorities get two-fifths of the total revenue, and that in India four-fifths is taken by the State and only one-fifth goes to the Local Bodies and that even of this one-fifth the State directly administers two-thirds.

If one were to compare the functions of Local Bodies in India with those obtaining in England, one has to admit that in England the functions of such bodies are of a diverse nature, and are undoubtedly very onerous. It will, therefore, be not suitable to

make comparison between these two bodies in the matter of financial help received by them from the Central Government. However, it will be useful to note that in England, in addition to the extensive grants made by Government towards educational and other objects, revenues received from death duties, drink duties and local taxation licenses are paid in aid of local rates generally after making deductions on account of expenditure on certain specified heads.

The Right Honourable Mr. Lloyd George reviewed in 1914 the whole question of the basis of Local taxation and the question of grants and assigned revenues. He advocated the principle that instead of being fixed grants, the grants must bear a direct relation to the expenditure. He further recommended the abolition of the present system of assigned revenues and laid down the most important stipulation that the Central Government will insist on an efficient service as a condition of the receipt of these grants.

But when once the necessity for substantial aid from Government is admitted, what remains to be done is to find out methods for rendering such help. Whether this is to be in the shape of subventions or assigned revenues or both or whether they are to be given on the basis of expenditure and on the services being efficient, is a matter of detail and is capable of settlement without much difficulty. In some cases it will be advisable for Government to earmark their subventions for particular purposes according to the needs of each Municipality.

Pulmonary Tuberculosis with special reference to its cause and spread.*

I HAVE chosen this subject because of its tremendous importance in connection with the future of the nation, the necessity of popular education regarding the disease, and from the fact that no effective advance in the control and eradication of tuberculosis is possible until the essential facts of the illness are accepted and understood by those able to control the spread of the disease.

* Popular Health Lecture delivered at the Y. W. C. A., Simla, by Lieutenant-Colonel Austen Smith, I. M. S., Surgeon to H. E. the Viceroy.

Pulmonary Tuberculosis, a disease responsible for at least one-thirteenth of the world's death-rate, is due to the successful invasion of the lungs by the Tubercle Bacillus. Two factors are concerned: (1) The Tubercle Bacillus, (2) The Resistance of the Tissues.

The Tubercle Bacillus was discovered by Robert Koch in 1882. It is the cause of pulmonary and of every other form of tuberculosis in man and in animals. It is parasitic, is found in all tuberculous lesions, may be cultivated outside the body, is able to reproduce the disease in any susceptible animal, and can be recovered from the tuberculous lesions of that animal.

The Tubercle Bacillus is a short, slender, straight or slightly curved rod with rounded ends, it is non-mobile and is found scattered or in clumps in tuberculous tissues. In recent active growing lesions the bacilli are more numerous than in areas of older and more chronic disease. These bacilli stain well with carbolfuschine and retain the dye against the decolorizing action of a 25 per cent. solution of mineral acid. This "acid fast" property which Erlich first noted is of value in determining their presence in tuberculous material.

When protected from light, Tubercle Bacilli may live for six weeks in moist decomposing sputum, and from six to nine months in dried sputum. They are killed by direct sunlight in three minutes and by daylight in a few days. Bacilli are killed by a 5 per cent. solution of carbolic acid (1 in 20) in thirty seconds, and by a 1 per cent. solution in 1 minute. Five per cent. carbolic acid destroys the virulence of its own bulk of sputum in a few minutes and is very useful as a disinfectant. Tubercle Bacilli are rapidly killed by a temperature of 70 C. (158°F.) but can stand the most intense cold.

Tuberculosis is not only the most widely spread of all diseases affecting the human subject, and produces a mortality greater than any other, but there is probably no other disease which affects the domestic animals so widely, and some facts

regarding the disease in lower animals may be given, as the subject is of great importance in relation to the infection of the human subject.

Amongst the domestic animals the disease is commonest in cattle (bovine tuberculosis) in which animals the lesions are very various both in character and distribution. In most cases the lungs are affected and contain numerous rounded nodules, many being of considerable size. These may be softened in the centre, but are usually of very firm consistence and may be classified. In other cases, again, the abdominal organs are principally involved. The udder becomes affected in a certain proportion of cases of tuberculosis in cows—3 per cent.—but primary affection of this gland is very rare. Tuberculosis is also a comparatively common disease in pigs, in which animals it in many cases affects the abdominal organs, in other cases produces a sort of caseous pneumonia and sometimes is met with as a chronic disease of the lymphatic glands, the so called “scrofula” of pigs. In the horse the abdominal organs are usually the primary seat of the disease, the spleen being enormously enlarged and crowded with tubercular nodules, sometimes, however, the primary lesions are pulmonary. In sheep and goats tuberculosis is of rare occurrence, especially in the former animals. It may occur spontaneously in dogs, cats and in the larger carnivora—wild animals in captivity especially monkeys, are liable to infection—but this in the London Zoological Gardens has now been reduced by giving animals and birds access to the open air instead of keeping them in permanently heated houses. While talking about tuberculosis among animals in confinement, that is, of the disease affecting them when away from their natural environment in unnatural and confined surroundings, I may mention that exactly the same thing occurs among human beings. When Civil Surgeon of Agra, I used periodically to inspect on behalf of Government the orphans at the Mission at Secundra near Agra. These orphans were, as far as I remember, “Kols” from the

south of the United Provinces, bordering on the Central Provinces, and were the children of a jungle tribe which had, during one of the famines, suffered severely. These children had been taken care of by the Mission and well looked after but in spite of it all, being used to living in the open air in the jungle, many of them developed tuberculosis in some form or other and it seemed as if they would only be healthy in their own natural open air surroundings.

Tubercle Bacilli show differences in the temperature at which they grow best, in their appearances on cultures and in their virulence for certain animals, according to the host from which they are derived. On account of these differences certain types of bacilli have been distinguished. We recognise two types: the human and the bovine.

Tubercle Bacilli—Human Type.—Under the microscope the human type of bacilli may be longer and more slender than the bovine type but they cannot be distinguished with any certainty. On culture media bacilli of the human type grow more quickly and luxuriantly, so to speak, than do bacilli of the bovine type. The human type is lethal to the guinea pig, but in the rabbit it produces small discrete retrogressive lesions. No standard as regards its virulence can therefore be established.

Bovine Type.—Bacilli of the bovine type are found in the tuberculous lesions of cattle and of the sheep, pig and horse. Under the microscope they are shorter and thicker than bacilli of the human type. On culture media they grow slowly and are lethal to the guinea pig and the rabbit.

Pulmonary tuberculosis is due to bacilli of the human type. In certain stages of every case of active aggressive disease the patient in discharging the infective material and chiefly through the respiratory system, the expectoration of such patients contains the virus and thus Tubercle Bacilli are disseminated. They are distributed by two vehicles, in the sputum itself, and in small droplets of secretion expelled during the act of coughing. A tuberculous patient may

discharge in the sputum over four thousand millions of bacilli in every twenty-four hours. If the sputum dries and is reduced to dust the bacilli are widely distributed. One hundred and eighteen samples of dust were collected from hospital wards and rooms of tuberculous patients; of these 40 induced tuberculosis in susceptible animals. Dust from a room in which a tuberculous patient had lived was found to be infective six weeks after the patient had left. Tubercle Bacilli may therefore be carried by air-borne dust. The spread of infection from dried sputum is limited by two factors—drying and exposure to sunlight—which rapidly destroys the virulence of tuberculous sputum, and being a tough sticky substance it is difficult to convert into dust, only a small portion therefore is likely to be reduced to so fine a state of division that it would float in air. When a tuberculous patient coughs he may expel in the air droplets of secretion containing tubercle bacilli; these are not projected more than a yard beyond the patient, and from their density fall to the earth. They contain far fewer bacilli than sputum and are much easier destroyed by natural agencies; still, in this way there exists an infected environment for every case of pulmonary tuberculosis with Tubercle Bacilli in the expectoration.

The endemic character of tuberculosis has been conclusively shown by the work of the Tuberculosis Dispensaries which have been established in England and Scotland.

Histories of tuberculous patients often provide marked examples of family infection; one case of paternal infection which carried down for three generations, claimed 16 dead and left 4 living infected persons.

Proved cases of direct or indirect infection of members of the medical or nursing staffs or Sanatoriums for pulmonary tuberculosis are very rare. This is no argument against the danger of infection. In Sanatoriums and at home it is, fortunately, possible to render a patient innocuous as far as infection to others is concerned. By education, guidance

and supervision a patient may be so trained that there is no risk of his infecting others, either at home or elsewhere. It is the unknown and uncontrolled cases which are a constant source of danger to the community.

Tuberculosis is, as I have said, responsible for the largest number of deaths among cattle, and mankind is greatly dependent for food upon their flesh and milk. Bacilli of the bovine type may be conveyed to man in the meat, milk and milk products of tuberculous animals. Milk may contain Tubercle Bacilli without tuberculosis of the udder being present; with udder disease bacilli are invariably found. Tubercle Bacilli may also be found in the manure of cattle and in this way be conveyed to milk by the hand of the milker or by the swishing of the animal's tail.

Tuberculosis in man and in cattle was generally regarded as one and the same disease, but in 1896 differences between the two types were pointed out and in 1901, Ravenel, an American, succeeded in obtaining from the mesenteric glands of a child a bacillus which in culture showed every characteristic of the bovine tubercle bacillus and must be regarded as having come directly from cattle. After a series of experiments Robert Koch announced in London in 1901 "that tuberculosis of man and cow are different and tuberculosis of the cow cannot be conveyed to man;" also that "the regulations concerning milk, butter and meat made against tuberculosis of animals and its transmission to man are not necessary". Commissions in Great Britain, France, the United States and Germany proceeded to test the accuracy of these statements. The Imperial German Health Officer found that bacilli of the bovine type were present in 13 cases of primary tuberculosis affecting the intestines and mesenteric glands in children, out of 39 cases examined. In Great Britain the Royal Commission on Tuberculosis (human and bovine) summarized its results as follows:—

"Of the 60 cases of human tuberculosis investigated by us, 14 of the viruses belong to group 1; that is to say,

contained the bovine bacillus. If instead of taking all these 60 cases, we confine ourselves to cases of tuberculosis in which the bacilli were apparently introduced into the body by way of the alimentary canal, the proportion in group 1 becomes very much larger. Of the total 60 cases investigated by us, 28 possessed histories indicating that in them the bacillus was introduced through the alimentary canal, of these 13 belong to group I. Of the cases in which cervical glands were studied by us, 3, and of the 19 cases in which the lesions of abdominal tuberculosis were studied by us, 10 belong to group 1".

Tubercle Bacilli of the bovine type have so far been found in but few cases of pulmonary tuberculosis in man. The Royal Commission found bacilli of the bovine type in 2 out of 42 cases of pulmonary tuberculosis, and the Commissioners conclude that "only rarely has a pulmonary lesion in man yielded the bovine bacillus".

The Royal Commission in Great Britain found bacilli of the bovine type in nearly half the cases of fatal intestinal tuberculosis in young children. In their final report the Commissioners state:—"Whatever, therefore, may be the animal source of tuberculosis in adolescents and in adult man, there can be no doubt that a very considerable proportion of the tuberculosis affecting children is of bovine origin, more particularly that which affects primarily the abdominal organs and the cervical glands—and further there can be no doubt that primary abdominal tuberculosis as well as tuberculosis of the cervical glands, is commonly due to ingestion of tuberculous infective material. The evidence which we have accumulated goes to demonstrate that a considerable amount of the tuberculosis of childhood is to be ascribed to infection with bacilli of the bovine type, transmitted to children in meals consisting largely of the milk of cows. We are convinced that measures for securing the prevention of ingestion of living bovine tuberculous bacilli with milk would greatly reduce the number of cases of abdominal and cervical gland tuberculosis in children,

and that such measures should include the exclusion from the food supply of the milk of the recognizably tuberculous cow, irrespective of the site of the disease, whether in the udder or in the internal organs.”

It is quite possible that the percentage of tuberculosis in glands, joints, bones and in the abdominal viscera, associated with the bacilli of the bovine type, bears a relationship to the extent to which cattle are affected with tuberculosis in the area where these cases occur, and in an investigation made in Edinburgh this was found to be the case.

In the United Kingdom the total death rate, per 1,000 living, from all forms of tuberculosis is about 1·64. The death rate from pulmonary tuberculosis is about 1·14 and about 70 per cent. of the deaths from tuberculosis must be ascribed to Tubercle Bacilli from human sources. There remains a death rate of 0·5 per 1,000 due to other forms of tuberculosis. In half of this latter group infection may be due to the bovine type. Post mortem records show that over 60 per cent. of the total population have been infected at one time or another with pulmonary tuberculosis. Clinical and experimental experience indicate that before tubercle bacilli can overcome the natural resistance of the body there must be a lowered vitality or a massive or virulent infection. The chief source of tubercle bacilli of the bovine type is the milk of tuberculous cattle. Tuberculous milk is usually mixed and diluted with healthy milk so that the risk of massive infection is diminished. Milk of which in London one in ten samples is infected, enters in one form or another into the dietary of the entire community, and yet only a small percentage suffer from tuberculosis. After infancy very little milk is consumed by the poor—the class amongst whom the tuberculosis death rate is highest. Milk is the staple food of childhood. Here there is the risk of infection longer continued and greater in amount than that to which adults are exposed.

Probably over 10,000 children die every year in the United Kingdom as a result of the sale of tuberculous milk. This

alone is just cause why the recommendation of the Royal Commission on Tuberculosis should be carried out. To the child born and bred alongside tuberculous persons the chance of massive infection from human sources is however vastly greater than from milk. In every case of pulmonary tuberculosis in man there is the potentiality of massive infection of others.

At the International Congress on Tuberculosis held in Rome in 1912 the following resolutions were passed unanimously :—

1. Prophylaxis of tuberculosis must principally be directed against the suppression of contamination from man to man ; and principally in the family.

2. The contamination of man by bovine infection is of less frequency ; nevertheless, it is necessary to maintain all measures against infection of bovine origin.

The common experience of mankind and a large amount of experimental evidence have proved the lungs to be specially susceptible to the tubercle bacillus.

As I have said, over 60 per cent. of the healthy population show the scars of early tuberculous infection of the lung. In these people the disease has failed to develop further. It may be said therefore that if a patient's resistance be not lowered either a massive amount of tubercle bacilli or repeated exposure to infection is necessary for the successful invasion of his system. Measles and whooping cough lower the local resistance of the lungs to latent or present infection. Influenza, pneumonia, broncho-pneumonia and bronchitis may exert a similar influence ; hence the necessity of care in the after treatment of patients who have suffered from these diseases and especially with children.

As regards age, a careful distinction is to be drawn between the age of the infection and the age of mortality. Recent observations go to show the extreme frequency of infection in childhood. Childhood is the age at which tuberculous infection

of the lung is most frequent. Where children are exposed to contagion from their parents, the amount of infection is five times greater than among those not so exposed. Over the age of 25, people are less often infected. The child is most vulnerable, the resistance increases with years. No age, however, is exempt, all are liable in varying degree.

Sex.—Under 5 years more males die of tuberculosis than females. Between 10 and 20, the proportion is reversed owing to differences in mode of life. This is very marked in India owing to the purdah system compelling women to live in ill-ventilated and insanitary surroundings and to the weakening effect of early motherhood. After 35 the male death rate is higher owing to the strain of industrial life.

Insanitary Conditions.—When a population is overcrowded and underfed, living in darkened tenements, or in back to back houses, breathing foul air in ill-ventilated rooms seldom lit by the sun, working long hours in gas-lit workshops, buying the cheapest food, drugged by bad liquor, it is inevitable that the resistance to tuberculosis, and indeed to every other form of disease, should be lowered.

In the country the death-rate from tuberculosis is usually lower than in towns, and in towns it is highest in the slums. Improved sanitation and better housing is generally followed by a lowered tuberculosis death-rate. Yet there is a limit to this. There was a slum in Liverpool in which the Phthisis death rate had reached the figure of 4 per 1000. The Corporation rehoused the entire population. In the new houses with the old tenants the rate fell to 1·9 per 1,000. A Phthisis death-rate of 4 per 1,000 is appalling but a rate of 1·9 per 1,000 is still excessive. The erection of new houses will not lower the mortality beyond a certain point. Education of the people and re-creation of the home from within are essential to the control and eradication of the disease, and this is where so much can be done by women working among the Zenana population of India.

Occupation.—Sedentary occupation, involving long hours in ill-ventilated rooms, lower the resistance to infection. Some tuberculous patients seek such occupation as offering an existence more sheltered from the elements. Trades associated with the inhalation of foreign particles, file cutting, knife grinding, needle polishing, stone cutting, etc., show a high mortality from pulmonary tuberculosis. The irritating foreign particles lower the local resistance of the lung to infection. A striking example was noted in Sheffield where half the deaths among the knife-grinders were found to be due to pulmonary tuberculosis.

Alcoholism.—The influence of alcoholism is probably mainly indirect, it leads to indifference to food, want of air, poverty and uncleanness.

Climate.—Climatic influences on resistance to infection are mostly indirect. High altitudes encourage the respiratory functions and give a relative but not an absolute immunity. The advantages of dry air and sunlight may be annulled by lack of light and air in-doors. This is exemplified in Southern Spain where the disease is excessively prevalent as the people sleep in bed rooms devoid of windows, fireplace or ventilator and warmed by charcoal stoves.

Locality.—This is important as the disease is usually less on the dry, well drained higher ground and more frequent in the lower lying damper parts of towns. Here too, frequently closed windows may have something to do with the excess. In India, as I have said, the disease is excessive in the ill-ventilated Zenanas and among tribes who sleep in small ill-ventilated rooms, e.g., Gurkhas in the hills.

Clinical research regarding "contacts" (*i.e.*, persons living in the same household) of cases of pulmonary tuberculosis are instructive. Of 204 cases examined from the St. Marylebone Tuberculosis Dispensary in London altogether 723 contacts were examined, of whom 420 were found to be healthy, 290 infected with tuberculosis of the lung and 13 with other forms of the disease. In all 41·9 per cent. of contacts were infected.

Of the original patients some were "infective" having tubercle bacilli in the sputum, while others were non-infective since no Tubercle Bacilli were found. The amount of infection in the contacts showed a marked relationship to exposure to infection. In the families of those in an infectious stage of the disease, the majority (60 per cent.) were infected with tuberculosis. In the families of non-infective patients the majority (75·5 per cent.) were healthy, the original cases being divided into four groups, non-infective males and females and infective males and females. It is of interest to compare these percentages with figures published by Squire in 1895 on "The influence of heredity on Phthisis". Of 1,000 families investigated by him, in 275 neither of the parents were phthisical, yet in these 275 families 24·87 of the children became phthisical. In 101 cases of non-infective tuberculous patients investigated in the St. Marylebone Dispensary, 26·4 per cent. of the children and contacts developed pulmonary tuberculosis. Further investigation is being undertaken on this point to test the conclusion to which these figures point, namely, that there is as much tuberculosis among the children of healthy parents as among the children of non-infective consumptives. If this be confirmed, it means that the influence of heredity is quite disproved. It also implies that if our activity against tuberculosis is efficiently carried out, we may look with confidence to its total eradication.

One application of these facts is of considerable practical importance to the general practitioner. In practically every household, rich or poor, with a single case of active aggressive or chronic infectious pulmonary tuberculosis, there are other cases of tuberculosis infection waiting to be recognised. When the disease has been diagnosed in one member of a family, all the others should be carefully examined. It is well to detect lesions when these are most amenable to treatment and when that treatment may be represented by the simple rules of the physiological life.

It may seem that I have gone very fully into the statistics regarding the sources from which tuberculosis in human

beings springs, but the importance of it all is obvious. In any investigation regarding the spread of disease it is necessary first to trace its source, and having found, so to speak, the cause, it may be possible to stamp it out. The future of Research Laboratories where these investigations are carried out is so important that they are gradually becoming the most important branch of medical work and especially in the East where so many diseases are traceable to micro-organisms, the life history of which have to be traced out, and in this way the stamping out of disease becomes possible. Every well equipped important hospital now should have its laboratory for research work attached.

In India one of the most important problems of public health is the prevention of the spread of tuberculosis. So much can be done by education of the people, inspection of schools regarding ventilation, encouragement of open air, healthy habits, isolation of cases of pulmonary tuberculosis, disinfection of rooms and houses where cases have occurred. It is hoped that gradually it will be necessary to notify to the Public Health authorities cases of pulmonary tuberculosis as is done in England and so carry out the isolation, etc. Much is carried out in England by the Sanatoriums for pulmonary tuberculosis, and it is hoped that the building of these will be gradually extended in India.

Personal Hygiene.

[BY DR. M. R. SAMEY, M.D., D.P.H. (U.S.A.), M.R.S.I.
(LONDON).]

Clothing.

CLOTHING must be adapted to the climate in which a person lives. Warm or heavy clothing is rendered imperative in a Northern climate, while the lightest and thinnest can only be tolerated in the torrid zones. It is, however, a physiological fact that the more the whole surface of the body is exposed to the external air, within certain limits,

the more vigorously is its functional action performed, and the better is it enabled to preserve its own proper temperature as well as to resist all unwholesome impressions from vicissitudes of weather, or the extremes of heat and cold. It should always be, as light and loose as possible without bodily discomfort.

The substances principally employed for clothing are linen, cotton, silk, wool, hair, or down. Woollens or flannels, being bad conductors of heat, afford the greatest immediate protection from cold ; and for the same reason are less debilitating to the cutaneous function than is generally supposed. The most healthy clothing for a cold climate, especially the year round, is undoubtedly that made of wool. If worn next to the skin by all classes in summer and winter, an incalculable amount of coughs, colds, diarrhœas, dysenteries, and fevers would be prevented, as also many sudden and premature deaths from croup, diphtheria, and inflammation of the lungs and bladder. Of course, the clothing should be regulated in amount according to the degree of the heat of the weather at the time prevailing. In a very hot day, for instance, a single garment might be sufficient, but on a colder day an additional garment should be added, and in this way keep the equilibrium of the temperature of the body uniform as possible day by day, the year round. Winter maladies would be prevented by the ability of a woollen garment to keep the natural heat about the body, instead of conveying it away as fast as generated, as is done by linen, flaxen, cotton, and silken garments. Indeed, the labouring classes, or those compelled to toil in the sun, would enjoy better health by wearing light woollen clothing, than by wearing linen or cotton fabrics. It is more healthful to wear woollen next to the skin, especially in summer, for the reason that woollen textures absorb the moisture of perspiration¹ so rapidly as to keep the skin measurably dry all the time. It is curious to notice that the water is conveyed by a woollen garment from the surface of the body to the outer side of the garment, where the microscope shows it condensed in millions of pearly drops ; while it is in

the experience of all observant people, that if a linen shirt becomes damp by perspiration, it remains cold and clammy for a long time afterwards, and, unless removed at once, will certainly cause some bodily ailment, as palsy, rheumatism, etc. To sit down, or remain inactive with a linen or cotton shirt wet with perspiration, will speedily cause a chill to the whole body, leading not unfrequently to some sudden and fatal disease. In the night-sweats of consumption, especially, or of any debilitated condition of the system, a woollen or flannel night-dress (light for warm weather) is immeasurably more comfortable than cotton or linen, because it prevents that sepulchral dampness and chillness of feeling, which are otherwise inevitable. The British Government make it imperative that every sailor in the Navy shall wear flannel shirts in the hottest climates, a rule that should be adopted by all persons everywhere exposed to variable weather, to extreme heats and colds, merely regulating the amount of woollen garments worn to suit the variable temperatures of climates and seasons. In saying all this, however, we must remember that comfort is very much a matter of habit; and therefore we should make due discrimination between the natural sensation of health and the morbid sensitiveness produced by false customs. For instance, some keep their whole bodies constantly covered by many layers of woollen garments, and yet go into a shivering fit at every unusual breath of cold air. The reason is, they never adapt their habiliments gradually to the degree of the heat or cold of the season. If it be deemed advisable to wear woollen clothing all the year round, whether summer or winter, it does not follow that we are to wear more than one or two extra folds of clothing in addition to the under garments. The true rule is not to cover all parts of the body equally with the same amount of clothing. The fleshy parts require the least clothing, and the limbs and feet, or less muscular parts, the most. Yet we often wear, in addition to under clothing, a thick vest, coat, and overcoat, and to these will add heavy scarfs of fur or wool to the neck, etc., while the legs and feet are seldom clad in more than a single additional

garment to the drawers and stockings. These parts require more clothing, especially in the winter season, than any other parts of the body. While it cannot be gainsaid that woollen or flannel clothing is the most suitable for the colder or even the more temperate climates, the use of linen or cotton clothing for the denizens of the torrid or tropical climes cannot be interdicted. The simple rule is to keep the head cool and the feet warm at all seasons of the year.

In a strictly hygienic regulation of dress, however, the colour of the clothing is not to be disregarded. White colour reflects the rays of the sun; black absorbs them. Light coloured clothing is, therefore, more comfortable and sanitary in warm weather than dark coloured, because the former repels the heat, while it is readily received and retained by the latter. The heat-reflecting or heat retaining property of different fabrics varies exactly with their lighter or darker shades of colour. This difference, however, is much greater in the luminous rays of light than in the non-luminous. When, therefore, we are not exposed to the sun, the subject of colour is of very little importance.

The absorbing power of dark surfaces renders the skin of dark-coloured animals, as well as the darker persons or races of the human family, less liable to be scorched or blistered by the direct rays of the sun than are those of a lighter colour.

The first physiological rule for dress is to have all garments as light in texture and as loose in fashion as is consistent with bodily comfort, or such as will admit of the most perfect freedom in the exercise of every muscle in the body. Inequality of clothing is a far more frequent cause of colds than deficient clothing. For instance, if a person exposes a part of the body usually protected by clothing to a strong current of cold air, he will take cold sooner than by an equal exposure of the whole body. A great safeguard against disease is to regulate the texture and quantity of clothing according to the temperature of the climate in which a person lives, avoiding extreme

colds or extreme heats; keeping the clothes always fresh and clean (especially that of the feet), and wearing a different garment at night from that worn during the day, not omitting the cleanliness of the whole body in the general hygiene of wearing apparel.

Children's Clothing.

With Dr. Tanner I have to say that the clothing of infants and children—let physicians say what they may—will always be modified by fashion and the various caprices of parents. So long as it is loose, simple, scrupulously clean, warm, soft, capable of being fastened without the use of pins, and not too heavy, its shape is immaterial from hygienic viewpoint. The long flowing clothes in which infants are generally dressed for the first five or six months though seemingly absurd at first sight, do certainly protect the legs and feet and lower parts of the body from cold air and draughts.

With regard to the material, some allowance must be made for the season of the year; but as a rule, cotton under-clothing is preferable to linen in this variable climate, since it is a better radiator and worse conductor of heat, and does not absorb moisture to the same amount. Its only disadvantage is that it is apt to cause irritation. For delicate children it is necessary that thin flannel be worn next the skin during the day, but not at night. In all cases the night clothes should be looser and less warm than those of the day; and every article should be changed before putting the infant to rest in the evening.

A cap is seldom required, especially in the nursery; but if one is worn it should be thin and light. The maxim "Keep the head cool and the feet warm," should be borne in mind.

As children grow older, it is often thought desirable to strengthen or harden them by exposure to cold, and by wearing very short thin clothes, with light drawers, bare necks and arms, etc. This is a great mistake, as all must acknowledge who remember that the power of resisting cold in

early life is very feeble. Of all predisposing causes of disease, there is probably none more powerful than cold. Hence children's dress must be warm, large enough to clothe the whole person, including the chest, neck, and arms, and sufficiently loose to allow of perfect freedom of motion.

There are some robust children, whose constitutional powers will enable them to bear up against this hardening system with all its cruelty; but such are not to be the criterion of its beneficial results. They merely prove that these children have grown up healthy in spite of the treatment, not in consequence of it.

The Care of the Baby.*

VI. The Home.

THE welfare of the baby depends largely upon the condition of its home and surroundings.

Fresh air.—A satisfactory home for a baby should provide plenty of fresh air and sunshine. Much of the baby's time should be spent out of doors after it is 3 months' old, on a porch or in the yard. A healthy baby should be kept out of doors at least four hours each day, even in winter except when it is colder than 22° F. During the summer a newly born baby may be taken out of doors in the first week. During the winter months the baby should be gradually accustomed to the outside air. A good plan is to begin with an outing of 15 minutes at noon and gradually lengthen the time into the forenoon and afternoon, until the baby is out from 10 a.m. until 2 p.m. The baby must be properly clothed, according to the weather.

The surroundings of the home should be free from uncovered garbage, rubbish, and manure. All of these attract flies and other disease-carrying insects.

* From a pamphlet prepared by the Committee of the American Association for the Study and Prevention of Infant Mortality.

The previous portions appeared in the July and August issues of the *Local Self-Government Gazette*.

VII. The Baby's Room.

A quiet room if possible with a south or southwesterly exposure should be given to the baby. It should be well ventilated at all times. An open fireplace is desirable. The room should contain no upholstered furniture or heavy curtains. The walls and floors should be so finished as to allow frequent wiping with a damp cloth. A porch adjoining the baby's room and running water near by are desirable. The temperature of the baby's room should be kept not higher than 68° or 70 in winter and in summer should be kept as cool as possible with awnings and shutters. The windows should be kept open day and night in summer, and in winter the room should be aired two or three times a day. The windows and doors should be screened against flies and other disease-carrying insects. In the absence of screens, mosquito netting may be tacked on the outside of the windows. The cellar of the house should be dry.

VIII. Clothing.

Improper clothing may be harmful to babies in three ways: First by being so tight that it prevents normal movements; second, by keeping the baby too warm; and, third, by not keeping it warm enough. The first fault can be avoided by making all of the baby clothes loose and roomy. Do not put on so many clothes that the baby perspires. All clothing except the shirt band and diaper may be removed in very hot weather. As the weather grows cooler, other clothing is added. The important thing for the mother to remember is that the baby is very sensitive to both heat and cold. She must be constantly on her guard to keep the baby cool enough in summer and warm enough in winter. The principal object of clothing is to insure a uniform body temperature. Loosely woven material should be used to allow proper ventilation for the skin. The use of a flannel belly band is necessary until the cord drops off. After the first month it may be replaced by a knitted band with shoulder straps.

List of Clothes for Newly Born Baby.

Three flannel binders ($\frac{1}{2}$ yard of 27-inch flannel).
Three shirts, wool and silk, or wool and cotton.
Two flannel petticoats.
Two flannel or knitted sacques.
Two pairs of worsted socks.
Two dozen diapers, 22 by 44 inches.
One dozen diapers, 25 by 50 inches.
Four white muslin slips.
One cloak.
One warm cap.
One pair of mittens.
One veil.
Two blankets.
One box talcum powder.
Two dozen safety pins, large and small.
Two bath towels.
Two soft towels.

LATER.

Three pairs of woollen stockings.
Three knitted bands with shoulder straps.
Additional diapers.

IX. Sleep.

Every baby needs 20 hours of sleep a day in its first month and not less than 16 up to the twelfth month of its first year. It should sleep alone, not in a cradle, but in a crib. If no crib is available, a clothes basket or a box of sufficient size is a good substitute. An expensive mattress is not necessary. A simple mattress made of excelsior and covered with a heavy blanket will answer very well. A sufficient quantity of clean bed clothing should be provided.

The room should be darkened and well ventilated; the windows should always be open at the top at least 6 inches, except in the coldest weather. If the baby cries when it should be asleep, it is probably sick, overfed, or hungry.

All children should take a nap of from one to two hours in the middle of the day until they are 6 years old.

X. The Bath.

Every baby should be bathed at least once a day; during the hot weather two or three sponge baths may be given in 24 hours. The temperature of the bath should be from 90° to 95° F. in the early months. By the end of the first year the temperature may be lowered to 80° to 85° F. If you have no thermometer, a practical test for the correct temperature is to use water that feels warm to the elbow.

When bathing the baby in a tub let it rest upon your left arm, which is slipped under its back from the baby's right side. By grasping the baby under the armpit with the left hand a good hold is secured which prevents slipping. The right hand is left free for washing the baby. A special wash cloth, preferably of cheese cloth, should be provided for washing the baby's face and head.

After the baby is taken out of the tub it should be dried in a large soft bath towel.

Do not wash a healthy baby's mouth ; it will do no good and may do harm. As soon as the baby has teeth, clean them carefully with a soft clean cloth or gauze, and later with a soft toothbrush and cooled, boiled water.

After the baby is dressed it is wise to keep it indoors for at least an hour after bathing and to protect it from drafts.

The best time for bathing the baby is just before its morning feeding, between 8 and 10 o'clock. After its bath the baby will be ready to take its food and go to sleep.

Sweetmeat Shops.

WE invite the attention of Municipal Councils to the interesting and valuable report compiled by Drs. Goldsmith and Sorab C. Hormusjee on the condition of sweetmeat shops in Bombay. Apart from the quality and composition of the sweetmeats sold in these places, the condition of the shops is a matter closely affecting the health of the people. In most Municipalities, the shops do not require any license, and where, as in Madras, the licensing of sweetmeat shops is made legal, the zeal of the licensing department and their anxiety to add to the revenue from license fees too often interfere with their efficient control by the sanitary department. In Madras, it is well known that sweetmeat bazaars are, in general, not properly kept. The chief feature about the Madras bazaar is that it usually consists of 8 or 10 feet by 4 to 6 feet, and in this small area

have to be accommodated the kitchen, stores, the water tap and the bazaar itself. Very often the "bazaar" consists of a few wooden planks arranged to hold the sweets in open trays, just above the open street side-drain.

In view of the increasing number of these shops, a closer supervision by the Public Health authorities seems necessary in the interests of public health. The Bombay Report is an exhaustive one, and on account of the general importance of the subject to all Municipalities, we reproduce below the more important portions of the Report.

In all, 505 places were examined and reported upon in detailed as regards the sanitary condition of the place of manufacture, in regard to light and air, surroundings, conveniences, water-supply—vessels used in the manufacture of the sweetmeats, storage of the materials used and of the manufactured article, cleanliness of those engaged in the preparation of these articles and, where necessary, the opinion of the Chief of the Fire Brigade has been obtained in regard to danger to life from the apparently dangerous proximity of wood-work to the furnaces.

Speaking generally the most characteristic feature of this trade is the almost entire absence of any attempt to maintain cleanliness. Not only are the premises in many instances dirty, but the vessels and workmen themselves. From the tabular statement this characteristic does not appear to be brought out so prominently as the above may infer, but it must be remembered the standard adopted has been set very low indeed, and, with one or two possible exceptions, none of the places approach an even poor standard of cleanliness in the West. Many factors contribute towards this, such as the absence of any provision for carrying away the products of combustion of the fuel used, and of any ordered attempt to cleanse the room and utensils at the close of each working day, the net result being that the walls and ceiling are smoked begrimed; the floor and lower portion of the walls covered with grease and sugar—the shelves (where such exist) being in a similar filthy condition, and in regard to the vessels used, it is sometimes a matter of difficulty to determine the metal of which they are made—owing to the accumulated dirt deposited on them.

This state of affairs is purely and simply due to causes capable of removal. There is nothing inherent in the trade to account for the deplorable condition of the majority of shops. This must be attributed to gross negligence and ignorance.

The total number of shops examined was 505, and in these some two thousand and twenty people were employed.

Forty-five places were found quite unfit for the purpose of preparing articles for human consumption in, and 21 were described as filthy.

The majority, *viz.*, 445, formed part of houses used for human habitation, 159 were used as shops and dwelling and 182 as shops only. In no less than 285 cases, the room or rooms were found not to be used solely for the purpose of manufacture or sale of sweetmeats, but as eating houses also (76) or as dwellings (255). Insanitary surroundings in the immediate vicinity, *e.g.*, open drains, privies, etc., were found to exist in 104 instances. Unsatisfactory lighting was found in 82 and bad ventilation in 68 cases; defective or insanitary flooring in 151 and unsatisfactory walls in 15 (such as canvas, matting, etc.). Forty-nine shops had no privy accommodation at all and in 50 instances, privies were found in dangerous proximity to the room used for manufacture of sweetmeats. In two instances the privy was located in the room itself (one of these latter shops has an exceptionally large clientele). 31 places were found to have insufficient privy accommodation.

In regard to the water supply the same feature so noticeable in eating houses was conspicuous in most places examined, namely, the storage of water in unsuitable receptacles and in situations open to grave objection. The vicinity of the privy appears to exercise a fatal fascination. Many water receptacles are placed in closest proximity to that structure.

Very few shops have adequate arrangements for the daily collection and removal of rubbish with the inevitable result that the street becomes the ultimate place of deposit. Many do not appear to go even thus far—the dirt being simply allowed to accumulate.

In some shops wood-work was found in situations deemed to be dangerous from the point of view of possible fire and in 58

instances the opinion of the Chief Officer of the Fire Brigade was invited. In 6 cases that Officer reported that existing conditions involved danger to life.

In the very great majority of cases no provision whatever exists for the carrying off of smoke and fumes and heat generated in the course of preparation of sweetmeats. Depending, naturally, very largely on the actual situation of the premises, nuisance may or may not result from smoke escaping without any control. It may be remarked, however, that the smoke nuisance is mainly—though not entirely—confined to the early periods of the working day when the fires are being newly lighted. The question however is not one confined merely to the point whether the smoke causes nuisance or not. As already mentioned many of the rooms are dark and ill-ventilated and in such rooms with one or more furnaces, 2, 3 or more men may be working all day with no means for the escape of waste heat and fumes from the charcoal, etc., consumed in the absence of any proper outlet such as a chimney. This cannot but exercise a prejudicial effect on the workmen having regard to the extreme heat and vitiated atmosphere.

Reference has already been made to the filthy condition of the utensils used in many shops.

One of the most noticeable features of the trade is the reckless way in which the prepared sweetmeats are stored and exposed for sale. As mentioned in the case of water storage, we have frequently seen sweetmeats stored in the immediate proximity of the privy. In the majority of cases the floor forms the usual place of storage preferably in some dark and dirty room.

When presented for sale, they are uncovered and exposed to the sun and to dust and to countless flies. In 426 cases, flies were reported to be present in considerable quantities and in excessive quantities in 65 cases. Such a state of affairs is but natural considering the nature of the articles exposed for sale. The risks involved are obvious and one of the essential reforms necessary is to adopt measures to prevent this undue exposure of such articles.

In 107 cases the workmen employed are described as being fairly clean and in 115 as dirty or filthy. This matter is also of importance when due consideration is paid to the fairly intimate contact of many portions of their bodies with the articles in process of manufacture.

Close personal observation of the sweetmeat shops of Bombay has resulted in the opinion that very widespread reform is essential, and that this should be directed more especially towards :—

- I. Suitability of the premises for the trade ;
- II. Proper design and approved position of the furnace ;
- III. Provision of proper standard pattern receptacles for water and also for sweepings ;
- IV. Properly protected storage places and cases, where sweetmeats are stored or exposed for sale, and
- V. The absolute insistence on a proper measure of cleanliness.

It will be seen from the above description of the conditions under which sweetmeats are prepared in Bombay, that the majority of the shops are located on the ground floor of dwelling houses, and a large number of them exist in highly objectionable and insanitary surroundings. The process of frying is carried on in open fire places without any provision for the escape of smoke by means of chimneys. There is hardly any cleanliness observed in the making of the sweets. Everything is done on the bare floor. There are no proper tables or even benches. The sweets are exposed for sale in open trays to dust and dirt, and flies are allowed to swarm over them in large numbers.

It is necessary for the safety of public health to control the conditions under which sweets are prepared at these places. Such places require to be licensed under conditions somewhat similar to those laid down in the case of eating houses.

The first step in this direction is to define the term "Sweetmeat Shops." The definition of the word "Eating House" which now exists in the City of Bombay Municipal Act will not apply to a "Sweetmeat Shop." Eating house means "any premises to which the public are admitted and where any kind of food is prepared or supplied for consumption on the premises for the profit or gain of any person owning or having an interest in or managing such premises." In the very large majority of sweetmeat shops, the sweets are not supplied to the public "for consumption on the premises," but are sold to them retail or wholesale for consumption elsewhere.

The Municipal Solicitors may be requested to draft a suitable definition of the word "Sweetmeat Shop," and when that is done

the Corporation may be requested to make the necessary representation to Government to amend the Municipal Act in the desired direction. When the licensing of sweetmeat shops is made legal under Section 394. the following conditions should be enforced in their case :—

(1) The room in which the sweetmeats are prepared, which for the sake of convenience, may be called the cook room, shall be entirely separate from the room in which the articles are sold. The floor of both such rooms shall be paved or cemented.

(2) The walls of every such room or rooms shall be lime-washed twice in a year in the first week of April and October, and the wood work thereof oil painted every three years.

(3) The cook rooms shall be provided with suitable furnaces or seegrees, and in the case of the former, wherever necessary, proper chimneys should be provided to the satisfaction of the Deputy Executive Engineers, Mechanical Branch, for carrying away the smoke. Moreover the furnaces and seegrees should be so located as to obviate any risk of fire. (Wherever necessary, the Chief of the Fire Brigade will be consulted in the matter.)

(4) The licensee shall provide a receptacle for the storage of water during non-supply hours. This receptacle shall be made of zinc, placed on a stand at least $1\frac{1}{2}$ feet above ground level, properly covered with a tight fitting lid, and kept under lock and key. It shall be cleaned in such a manner and at such intervals as shall be determined by the Deputy Health Officer. The receptacle shall be fixed in a definite position approved of by the Deputy Health Officer of the Ward.

(5) The licensee shall provide a proper cup-board protected either with glass or very fine wire-gauze for keeping the sweetmeats and milk, with a view to protect them from dust, dirt, and flies. On no account shall any of the sweets be exposed for sale in open trays or baskets.

(6) The licensee shall provide and maintain in good repair, a metal sanitary dust-bin of approved pattern and provided with a lid. He shall use this dust-bin daily for the storage of waste materials and sweepings of the floor, and empty the contents daily into the nearest Municipal dust-cart.

(7) The licensee shall provide a table or tables for kneading the flour and for making the sweetmeats. Such table or tables shall be marble topped. He shall also provide a sufficient number of benches or racks for storing the various materials used in the manufacture of the sweetmeats.

(8) The licensee shall provide and use a metal bin or metal lined wooden box for the storage of any coal, coke, charcoal or fire-wood required for the preparation of sweetmeats. Such bin or box shall be located in a situation approved of by the Deputy Health Officer of the Ward.

(9) The licensee shall provide a proper washing place for cleaning the various utensils used in the business. Such washing place shall be properly drained and connected to the sewer, and in the case of those sweetmeat shops located in a portion of the Island where a drainage system does not exist, the provision for disposal of waste water shall meet with the approval of the Deputy Health Officer of the Ward.

(10) The licensee shall keep his sweetmeat shop at all times in a cleanly state and he shall be liable to prosecution for failure to keep the premises in a proper state of cleanliness and for any neglect or reasonable precautions in respect of the storage of the sweetmeats, milk or other articles of human consumption.

(11) All copper and brass utensils shall be tinned at least every two months, or whenever the licensee is called upon to do so by the Deputy Health Officer of the Ward.

(12) The licensee shall not employ any person suffering from any infectious disease on the premises in any capacity.

(13) No portion of the sweetmeat shop shall be utilized for preparing bhajias or articles of a like nature on seegrís or chulas. Such articles shall be prepared in the regular room set apart for the manufacture of the sweetmeats.

Town Planning Schemes and Road Construction.

IN connection with the Town Planning Acts now on the legislative anvil of the various Provincial Governments in India, we would invite the attention of our readers to an excellent paper read before the English Town Planning Institute

by Mr. W. Rees Jeffreys, Secretary to the Road Board. The paper examined the possibility of building and improving roads of importance under the powers of the Town Planning Act. After dealing with the legal points arising out of the Act, Mr. Jeffreys showed that the Act enabled roads to be constructed or widened at less cost to the local authorities than by any other procedure. The difficulties arose, however, in connection with the laying out and making of arterial roads in co-operation by neighbouring local authorities. The first difficulty was the absence of inducement for men with necessary qualifications to initiate and carry out such combined schemes. The remedy proposed by the author was the formation of an annexe to the Local Government Board for the training and employment of practical town planners who could be employed by the local authorities. The second was that of financial obligations that would have to be borne by the local authorities in advance of building development. The last difficulty arose out of the divided interests of adjoining authorities. To meet this, it was suggested that a permanent Commission should be appointed to enquire, investigate and adjudicate on the obligations of the various bodies. The central proposal of the paper was, however, the establishment of a Town Planning Commission with power to initiate schemes, and execute them when necessary, and assist with funds.

Our object in summarising the chief points raised in this excellent paper is to apprise the various Governments, who have in hand the initiation and revision of Acts relating to Local Self-Government Institutions, of the difficulties experienced in the working of such Acts in England. We have no doubt that the English Act will be taken as the basis for the Indian Regulations, and in regard to the town planning sections, we would recommend for consideration, the points raised by Mr. Jeffreys. It would be an advantage not only to have a central committee for each province, or group of districts, but it should be possible under the Act to co-ordinate

the activities of the various local bodies in regard to the construction of arterial roads. It should be made impossible for local bodies to move in water-tight compartments in such matters as roads, public health, etc. We consider that it would make for economy, efficiency and speed, if an arterial road in the sphere of a local authority, instead of its being terminated at the boundary of such sphere, is inter-connected and continued into the adjoining sphere of the neighbouring local authority, and so on.

Road Construction.

American Standard Specifications.

THE American Society of Civil Engineers are issuing from time to time specifications on the model of the British standard specifications. The Society has been engaged on this work for many years, and its labours are not completed, and will not be completed, we think. Its method is to form special committees of experienced and expert engineers to collect and crystallise information on matters in which they have specialised, study and report on them. such study often occupying years, during which interim reports are submitted until a final report embodying all the experience, research, and information available is submitted. "Materials for road construction and on standards for their test and use" is among the recent of such publications, which brings together a large amount of information and facts on an important subject.

The report deals with the choice of materials, which should be governed by three main factors: (1) Speed of the traffic, (2) Volume of the traffic, (3) Grade of the road surface. In regard to unit width of traffic to be adopted, we find that 9 to 10 feet is recommended, which is now being adopted in India also. There are tables embodied showing thickness of foundation, wearing course, slope, etc., required for various kinds of roadway. Although conditions in America differ widely in many respects from India, we consider a study of this report would be found interesting and suggestive to road engineers.

Report on the laying of an experimental length of voidless Asphaltic Road Surface in Madras*.

THE site selected was in Mount Road near Munro statue. The length laid was 150 feet, the area being 8,437 sq. ft. and the finished thickness 2 inches. The materials used were crushed blue granite, Portland cement, or flue dust from the Municipal Incinerators, and the Standard Oil Company's Grade A-4 Socony Asphaltum. The crushed blue granite was so graded and proportioned as to produce an aggregate as nearly voidless as possible, the smallest voids being filled with cement or flue dust. All the materials were intimately mixed in their proper proportions, heated and thoroughly incorporated with the Asphaltum at a temperature of about 300° F., laid on the road in a layer 2½ inches thick, and first hot rolled, then cold rolled to the finished thickness of 2 inches. One section was laid with cement as a filler and another with flue dust, the latter appears to produce as good results as the former and is cheaper. The total cost was Rs. 4,670, but this includes the capital outlay on special tools and plant required, which are available for further use. The net cost allowing for depreciation of plant was about Rs. 2,420, or Rs. 28-10-11 per 100 sq. ft. or Rs. 2-9-4 per square yard. The cost is undoubtedly high, due to the fact that the labour was untrained, all the work was hand done, war prices were paid for Asphaltum and cement, and there was considerable wastage in fuel owing to the uneconomical methods which had to be adopted for heating materials. It is estimated that with trained labour and mechanical mixing, by using flue dust instead of cement, with Asphaltum at pre-war rates and by laying larger areas at a time, the cost per square-yard should not exceed Re. 1-6-0. A traffic census was taken for this road, which showed that about 2,900 vehicles passed per day, of which about 40 per cent. were heavy carts. The life of the road is estimated at from 10 to 15 years.

* Extract from the report of the Corporation of Madras for the year ended March 31st last.

The Problem of Dust on Roads.*

[BY. T. SARVESWARA DIKSHITULU, DISTRICT BOARD
ENGINEER, CUDDAPAH.]

THERE are certain facts which are of common knowledge.

(1) The period of dustiness of roads is generally from February to May. The interval of dry weather after the close of the rains for the year and before the commencement of the rains of the succeeding year corresponds to the period of dustiness; the period varies a little with the incidence of rainfall for each district.

(2) There will be less dust in areas where the soil retains moisture long after rains cease and practically none in areas where water will always be present at the sides.

(3) There will be more dust formed in the slopes of hill roads than on the level portions.

(4) There will be more dust formed in the areas of thin forest than in areas passing through thick forest.

(5) With the advance of the summer and the advance of traffic on the roads after harvesting, the dust formation increases day by day till a limit is reached in the middle of summer when further dust ceases to be formed.

(6) The dust will automatically disappear with the prevalence of winds or the fall of summer showers.

(7) Removal of dust unaccompanied by profuse watering of the road results in re-formation of dust at very short intervals.

(8) There is more dust formed on roads with heavier traffic. In towns the roads whereon fast conveyances move develop dust quicker than in the bye-roads with less traffic and subject to regular sweeping and watering by the housewives.

* A paper read at the Madras Local and Municipal Conference (1917).

What is the cause of dust? Can it be prevented altogether? Can the nuisance be reduced by careful selection of material for road repairs and revision of methods of work of road repair? These problems face all municipalities and local boards and have to be solved year after year. I leave out of consideration the remedies adopted and experimented on in rich municipalities with tar macadam, wood paving and concrete construction which are beyond the resources of the moffusil local boards and municipalities as they now stand.

What is road dust? It may be the powdered metal of the roadway; it may be the gravel that was adhering to the metal in the rainy weather but came up to the surface in the hot weather refusing to adhere to it in summer; it may be the loose soil coming up from below the metal layer to over the road surface through the pores of the metal. As the dust partakes of the colour of the metal or gravel or the soil, as the case may be, it is possible to assign the blame in the right quarter.

(1) If the dust be due to the powdering of metal by heavy or fast moving traffic the obvious remedy is changing to the use of thicker re-coats if no better metal could be secured or to replacing by a variety wearing harder than the one in use. Removal of dust in such areas and watering may show off a road as fair for the time being but the removal of the dust cushion causes further powdering of the metalling below. The temporary expedient of removal of dust and watering has to be restricted to areas where it cannot be avoided. To embark on the removal of dust and watering only results in the necessity of relaying with thick recoats all the roads so treated. Apart from the financial restrictions to embarking on such a scheme, the risk involved has to be kept in view. It may be asked why putting in a thicker re-coat of soft metal that wears evenly, when heavy traffic or fast moving vehicles pass over it, prevents the formation of dust. The reason is simple. When a thick re-coat is laid, the pores of the metalling widened in summer will be capacious enough

to retain the dust formed on the wearing area which will be driven down into the pores by the vehicles. The thin layer of dust acts as a cushion preventing further disruption.

(2) If the dust be due to the loosening of the gravel on the metalling, either the gravel lacks binding power or the metal is of exposed stones broken, which are always difficult to be kept compact. A remedy for this kind of situation is only regular watering in summer. It will not be always easy or practicable to change the metal or gravel to be used. By regular watering the disruption that will be caused by the absence of moisture in the metalling will be avoided. It may be safely asserted that when dust is formed where water is present in the sub-soil in the localities that fall under this head, the consolidation was badly done. If it be found that the gravel and metal refuse to remain bound together in summer even after careful consolidation in the rainy weather and careful and regular watering in summer, then either the metal or gravel has to be replaced or both.

(3) If the dust be due to the loose soil from below the metalling coming up through the pores of the metalling, it has to be classed as a nuisance for which there is no remedy by removal of dust or watering. The molecules of the sub-soil become finer than the molecules of the powdered metal or powdered gravel of the roadway and find a way to the top of the road surface through the pores of the metalling. The only remedy against a repetition of the situation for the next year will be experimenting with a thicker recoat and careful consolidation in the middle of the rainy weather. In the tracts where this situation is met with, it will be found that when once the rising of the sub-soil to the road surface is arrested, it may be it is arrested for ever, the mass of metalling forming a kind of a solid barrier.

The second point is, are the Municipalities and District Boards justified in changing the material used for water-bound macadam roads with a view to avoid this periodical dust nuisance? Whether it be to pedestrians or cyclists or

persons travelling in a fast conveyance or automobiles the dust on the road rushing up to the eyes and face and enveloping their outfit renders them cross and impatient. The road is awfully dusty—it is impassable—is the first ejaculation that comes up to the lips when the traveller meets any acquaintance just after the travel. The temporary makeshifts of sweeping off the dust and watering possible in the compact areas of such municipalities with facilities for securing water in summer for sprinkling on the roads will not be possible of application for District Boards and waterless or poor municipalities. The financial aspect imposes limitations on the provision of thick recoats for thin recoats on the replacement by harder varieties of metal and metal with more of quarry sap and by gravel with more of binding power. When there is no possibility of removing the dust periodically in summer and watering the road surface and when no funds will be forthcoming for treating the roads in such a way that the dust nuisance is reduced in proportions by a selection of material or a profuse use thereof, the dust nuisance has to be put up with, with as good grace as possible. Thin dust actually prevents the deepening of the ruts and the development of holes. It is only when there are deep ruts formed and holes developed in addition to the formation of dust that it is clear testimony to the metal having been powdered or having been driven into the sub-soil. It will thus be seen that it is holes and ruts that are to be taken cognisance of rather than dust which is after all a temporary nuisance and one bound to pass away sooner or later. A poor Municipality or District Board is confronted, say, with the following problem to be solved. The rainfall is poor. There will be no moisture in the sub-soil. Soft stone is available as well as hard stone. The softer stones bind quicker in the rainy weather, wear more evenly, offering a more pleasant road to ride over even with a few holes and ruts. If the harder stone be used, there will be more of expenditure to be encountered under cost of material under consolidation (hard stone metal requires more of water to be kept on bound together than soft metal and requires

more rolling). The ruts and holes formed in road laid with hard stone will be sharp and abrupt. Dust develops quicker on the road when laid with softer stones. Do the above circumstances warrant the elimination of the use of the soft stones in favour of the more expensive hard stone? I think not, except it be that it is found on experiment that the use of the hard stone keeps on the road longer from actual disruption than the soft stone to compensate for the increase of expenditure. It will sometime become necessary to undertake watering even when this dust is beginning to be formed over new recoats to preserve the compactness of metalling through the summer months. This will be necessary in areas rendered devoid of moisture in the sub-soil through any deficiency of rainfall. The slopes of dry ghauts which will be found dusty in summer with the use of soft stone should be treated only with the hardest stone available to prevent easy and early disruption in the dry weather through the drying up of the moisture and through the rush of water in the rainy weather. The treatment of the steep slopes with hard stone will incidentally remove the periodical nuisance of dust.

We cannot control the rainfall. The non-retention of moisture in the sub-soil is a factor over which cavilling is of no use. The kinds of metal and gravel we can secure and choose from are more or less defined and cannot be possibly impressed upon with an eye to efficiency regardless of cost. To make a profuse use of material that is available to us there will be limitations to restrict operations to, within the means, each year.

To make the best use of the material that will be available to us and to work with it under the conditions present is under the control of all Municipalities and District Boards. Defective methods of work are likewise responsible for the compactness of the consolidation, of disruption in summer, and formation of dust, holes and ruts with traffic. Whether the stone used be soft or hard, it should be of uniform composition. To mix stone quarried with stone picked up from

the hill sides, to break soft stones from the top courses and mix them with hard stone from the bottom courses of the same quarry, to cart with the broken stone a large volume of the earth of the locality wherefrom the metal is carted are some of the tricks commonly adopted by unscrupulous contractors and connived at by subordinates. It is only when the area over which metalling is to be done is a quagmire that such a conglomeration will be kept bound together by all the loose stuff settling to the mire under pressure. Unequal wear causes dust with formation of sharp holes which cause the ruin of the road. When material is to be had, say, in only a few defined places, as in the deltaic portions of Godavari, Krishna and Tanjore, the trouble of a mixture of a variety of stones liable to unequal wear may not come in ; but in hilly Districts where the quarries will be legion, good results depend upon the sense of duty and watchfulness of the subordinate in charge. The quarries may be defined but to see that the material is brought only from the specified quarries is not so very easy. To secure sound consolidation the materials for road repair should come before the rains and spreading and rolling should be done in the rainy months. To keep up the metalling as a compact solid mass throughout the summer which is what is meant by a dustless road, the pouring in of water and rolling on when the weather is not cool above and when moisture below is being dried up is ineffective. To postpone road repairs to the far end of the rainy season on the belief that there will be water available for consolidation is not therefore wise. It is not unusual for a decision about the roads to be repaired for the year not arrived at till after some months of the year have passed away. If what has to be done in a year is decided on in advance for each year and all the facilities offered for the material for the repair of the roads to come in before the commencement of the rains of the year, the responsibility for achieving road repairs in the rainy season and showing roads as dustless as possible in the succeeding summer falls on the executive.

The exercise of watchfulness over picking of the old road surface and sectioning it to make the new material bind on to the old and over rolling it thoroughly well in the rainy weather is an obvious necessity for securing compactness of newly laid metalling. It is not unusual to use a larger quantity of gravel than is absolutely necessary for keeping the metal bound together and for the presentation of an even surface coating. This may be done to attempt to cover up bad consolidation or through a mistaken notion of the purpose of gravel. More gravel than is necessary results in more dust in summer. The proportion of metal to gravel to be used on the roads depends on the nature of the metal, on the nature of the gravel, on the condition of the soil and on the climate of the locality. Without dogmatising about the proportion of gravel to metal to be used for metalling, it may be stated that the less of gravel used the better. It will be better still if the compactness could be secured without any gravel whatsoever through profuse watering and rolling with steam or motor road rollers. In such case a very light coat of gravel or sand for the surfacing gives an excellent road free from dust in summer. It should be remembered that the purpose of the gravel is to fill any interstices in the metal after the latter is rolled in. To throw gravel over unconsolidated metal and roll the mass together may show compactness for the occasion, but incidence of traffic or coming in of summer causes complete disintegration giving dust, loose stones, ruts and holes. This danger is present in areas where watering is only by rain, and where rains fail to come in at conveniently short intervals and water will not stay at the sides after a rain.

Avenue trees moderate the severity of the sun on the road; green grass by the road margins to some extent prevents the early drying up of the moisture of the soil below metalling. Stern action against the hacking of leaves of avenue trees for goats and against the removal of grass from the road margins is desirable to be taken as a dust preventive measure.

The controversial aspects of dust are not touched upon. The subject is treated only from the point of view of one who feels dust a disgusting nuisance which one would like to do without if one can.

Obstructions on Footpaths.

(Rangoon.)

THE question of encroachments and obstructions, whether of a permanent or temporary nature, on the streets and footpaths, has, as in other Municipalities, been receiving continuous attention of the Rangoon Municipal executive during the past few years. The "temporary obstructions," recur day after day, more especially between the hours of five and nine in the morning, and to a lesser extent in the afternoon between two and four p.m. The obstructions in question occur in the footpaths on either side of China Street adjacent to the C and D Zegyos of the Soortee Bara Bazaar. The instructions which have been issued by the President to the Municipal staff are to keep the footpaths clear of petty vendors or hawkers but not to interfere with the trade traffic, that is, with goods and produce brought to the bazaar or taken out from the bazaar by purchasers. A sergeant and a constable are posted daily at this place between 7 and 10 a.m. and 1-30 to 4 p.m., whose duty it is to carry out the orders given to them. The footpaths are crowded with men, women and goods, especially in the morning until about 9 or 10 a.m. The reason for this is that between these hours produce is brought in for sale at the Zegyos and most of the articles are purchased and again brought out over the footpath by the purchasers, who with their coolies, baskets or "kawads" wait on the footpath. In many cases, persons who have already bought some goods at other places in the market come along with their coolies and baskets to complete their day's purchases from the Zegyos, and while the purchase of vegetables and fruits is being made the coolies with their baskets remain on the footpath. The constables do what they can to clear the footpaths as quickly as possible.

The Benares Water Works.

W^E are indebted to the Executive Officer, Benares Municipality, for the following particulars regarding the Benares Water Works:—

The water works were originally designed for a supply of four million gallons a day to a population of 205,600.

The source of the supply is the river Ganges which is tapped above the town. The intake works are three 30" C. I. pipes laid at different levels into a suction well 15 ft. diameter, and a pumping station containing two sets of horizontal compound surface condensing engines, and Cornish boilers to suit with a set of vertical three throw pumps for each set of engines. The capacity of each pump is 42,000 gallons a minute against a total head of 95 feet. From here the water is pumped through a 24" cast iron rising main over $\frac{3}{4}$ th of a mile long into three sedimentation tanks, where after 3 days settlement the water is passed through sand filters into a clear water reservoir, from whence it is again lifted and pumped into the distribution system of the town.

The settling tanks are each 400' \times 250' nearly by 9 feet deep, and are earthen reservoirs; the inner slopes being concreted.

The sand filters are eight in number, each 200' \times 100' and are of the standard pattern, the filtering material consisting of broken stone and sand over brick drains.

The clear water reservoir consists of two compartments each 180' \times 150' \times 12' nearly, the floor being made of brick on edge laid on first class lime concrete and lime plastered to a smooth and polished surface. The pumping station for the filtered water contains two pairs of compound surface condensing engines, a high duty Vertical Worthington Pumping Engine, bucket and plunger pumps and Badcock and Wilcox boilers to suit.

The distribution system consists of 70 miles of pipes from 3" to 32" in diameter. Owing to the demand having risen to six million gallons a day, the supply to the town is intermittent and is restricted to eight hours a day.

Muttra Water Supply.

AN interesting function took place at Muttra on September 4th, when the Commissioner of the Agra Division held the opening ceremony of the Muttra Water-Works. The Muttra water-works are the first of the kind to be completed in the United Provinces. They consist of four tube wells situated about 400 feet apart and forming a square. In the centre of this square there is a central sump 20 feet diameter and 42 feet deep forming part of the power house. This central sump is connected by means of underground tunnels to each of the four tube wells. Electric pumps and motors capable of pumping 1,000 gallons of water a minute are installed in this central sump and draw the water from the wells through suction pipes placed in the suction tunnels. The motors get their current from generators driven by Mirlees Diesel engines of 100 h. p. each. The water is pumped at the rate of 1,000 gallons per minute into two balancing tanks of 100,000 gallons each placed 112 feet above the pumps, and distribution mains carry the water from these tanks throughout the city of Muttra. There are no filters, and the whole scheme is simple in working, the pumps drawing pure spring water direct from springs 200 feet below ground level, and delivering the same to the consumers. The great advantage of water-works like that installed at Muttra is that they are low in initial and yearly recurring cost and well within the means of municipalities which could not for financial reasons think of a project on the old lines of two pumping stations and costly settling tanks and filters. This very interesting and successful project was designed by Mr. C. H. West, Sanitary Engineer to the Government of the United Provinces, under the direction of the late Chief Engineer, Mr. W. G. Wood, C.S.I.

Calcutta Drainage Works.

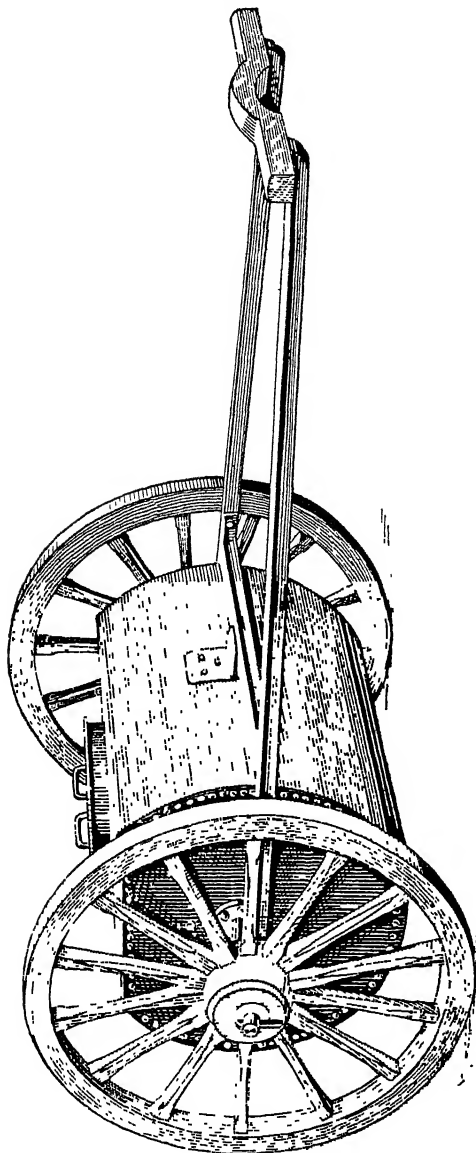
WARD No. 21, which has been improved by the Improvement Trust, is to be drained on the combined system. This area is at present provided with only open *kutcha* drains which distribute sullage in dry weather, and only partially carry away storm water. As a result, the whole area is water-logged, insanitary and unhealthy. The Chief Engineer of the Improvement Trust has submitted plans and estimates for a "Combined Sewerage Scheme" for this area. The extent of it is 1,100 acres. In the Chief Engineer's opinion, the combined system for this ward is the only system whereby open drains of every description may be abolished, as it is impossible to create healthy conditions where any open drain system obtains. In regard to this point, he is supported by Dr. Bentley, the Sanitary Commissioner for Bengal, who in a recent report stated that the Elephantiasis Mosquito, during dry weather, was found breeding in enormous numbers in open drains and other collections of foul water. Further, a separate system of surface water drains is expensive of land, and ultimately more costly than the difference between the cost of a "separate" system and a "combined" system of sewerage.

The scheme, we find, is designed to deal with $\frac{1}{6}$ th of an inch of rainfall per hour, without pumping. This is considered sufficient for the area populated to the extent of 50 persons per acre. Should the population increase to the density in the city, the capacity of the sewer might be increased to $\frac{1}{4}$ inch per hour by pumping. The Chief Engineer to the Calcutta Corporation has generally approved of the scheme. The cost of the proposed scheme amounts to nearly Rs. 16½ lakhs. Towards this expenditure the Calcutta Corporation contributes Rs. 8 lakhs.

Materials and Appliances.

Night Soil Cart.

We reproduce below an illustration of the Standard Type of Night-soil Cart manufactured by Messrs. James Alexander & Co., Engineers, Kidderpore. The carts are made in different sizes and capacities, and embody all improvements suggested by experience.



The body of each cart is stoutly constructed of mild steel plates rivetted to an angle frame and is further strengthened and stiffened internally with a centre flanged pipe, which is rivetted to the end plates. The axle is a through axle, revolving in the centre pipe, and the wheels are of wood or iron as desired. The shafts are of 1' dia. round mild steel, yoke of sal securely fixed to the end of the shafts. Each cart is fitted with a double lid, and the inner lid can be sealed with a handful of earth. The through axle has many advantages over the usual type of short axle rivetted to a flange and bolted to the end plates which is much used.

Municipal By-laws.

PREVENTION OF NUISANCES (MURTIZAPUR).

THE following rule made by the Municipal Committee of Murtizapur, in the Akola District, under Section 116, of the Berar Municipal Law, for dealing with nuisances committed within the limits of the Murtizapur Municipality is published in the *C. P. Government Gazette*:—

No person shall perform the office of nature in any public road, drain or channel, or in any place of public resort or in their vicinity or in any abandoned site or any open place not specially set apart by the Committee for the purpose, and no parent or guardian of any child under the age of 10 years shall, unless on the ground of the child's ill-health, allow such child to perform the offices of nature in any such place.

Legislative Intelligence.

The Calcutta Municipal (Amendment) Act.

THE Calcutta Municipal Act, 1899, failed to check the practice of adulterating ghee and selling adulterated ghee in Calcutta. In view of the evils resulting from widespread adulteration, it was considered necessary that more stringent measures should be taken to provide for the purity of the article and to penalize the manufacture, storage, and sale of ghee that is adulterated. The Act has therefore been amended, and the Amending Bill, which was introduced on the 4th September 1917 was passed by the Bengal Legislative Council. It received the assent of His Excellency the Governor on the 5th September 1917, and of His Excellency the Viceroy and Governor-General on the 12th idem.

The Amending Act defines the term "adulterated" in relation to ghee, there being no such definition in the Act of 1899. Ghee shall be deemed to be 'adulterated'—

(i) if any substance has been mixed or packed with it so as to reduce or lower or injuriously affect its quality, or

(ii) if any substance has been substituted wholly or in part for the article, or

(iii) if any valuable constituent of the article has been wholly or in part abstracted.

The Act prohibits the sale of ghee which contains any substance which is not derived exclusively from milk, or which is adulterated, unwholesome or unfit for human food, and it further prevents persons from defeating the law by selling impure articles under a similar name. Section 507 of the old Act has been amended so as to give power to the Chairman to compel the sale to him during manufacture or storage of any ghee the pureness of which he may desire to test. This has been considered to be a very necessary provision in view of the frequent practice of adulteration of ghee while in process of manufacture. The Chairman may also take samples, for the purpose of analysis, of any ghee which is in transit to Calcutta or stored in any place in Calcutta. The price of any sample taken will be payable to the owner on demand within one month from the date of surrender of the same. It is provided that a report signed by an analyst certified by the Chairman to be employed by the Corporation for the purpose of analysing ghee shall be sufficient evidence of the result of such analysis.

[Parliament.]

HOUSING SCHEMES.

Mr. Gilbert asked the President of the Local Government Board whether he had issued to local authorities a circular promising financial help for housing schemes to be put in hand after the war; what help he proposed to give local authorities for this matter and on what method it was based; and would he bring up the proposals to this House before any definite scheme was finally entrusted to local authorities?

Mr. Hayes Fisher replied: I have issued a circular to local authorities in England and Wales, saying that the

Government recognise that it will be necessary for the years immediately following the war to afford substantial financial assistance from public funds to those local authorities who are prepared to carry through without delay at the conclusion of the war a programme of housing for the working classes approved by the Local Government Board. I have also stated that it is not possible at this stage to indicate either the form which this assistance will take or the extent of it. This is a matter which must be settled at a later date, and no doubt there will be opportunity for the House to express its views on any definite proposal put forward by the Government.

Sir Francis Lowe: In making these grants to local authorities, will my right hon. friend consider the claims of various utility services and private enterprises, and will he also have regard to the injury which might be inflicted on the building and allied trades if preferential treatment were given to the local authorities?

Mr. Fisher: These matters are being considered and will be considered.

[Bengal.]

RIGHT OF MUNICIPALITIES TO ELECT THEIR OWN CHAIRMEN.

The Hon'ble Babu Aphil Chandra Datta asked Government to state the principles on which, and the reasons for which, the right to elect their Chairman has been granted to 11 municipalities and the reasons for withholding the same right from 14 municipalities in Bengal.

Government referred the Hon'ble member to the following circular issued to Commissioners of Divisions :—

Circular No. 10 T.—M., dated Darjeeling, the 24th October, 1916.

From—L. S. S. O'Malley, Esq., I.C.S., Secretary to the Government of Bengal, Municipal Department.

To—All Commissioners of Divisions.

I am directed to refer to your

- (1) Burdwan (1) letter No. 475 T.—M., dated 19th August, 1916,
(2) Presidency. (2) letter No. 25 M., dated 28th April, 1916,
(3) Dacca. (3) letter No. 2201 J., dated 2nd March, 1916.
(4) Chittagong. (4) letter No. 3765 G., dated 26th May, 1916,
(5) Rajshahi. (5) letter No. 1596 M., dated 12th June, 1916,
submitting a report on the four questions relating to the nomination and election of Municipal Chairmen which were raised in this department circular No. 10 M., dated the 17th February, 1916, viz.—

(1) What municipalities included in Schedule II are desirous of being removed from that schedule, and which of them can be allowed to elect their own Chairmen without injury to the welfare of the ratepayers whom they represent.

(2) Whether in the event of any municipality included in Schedule II not desiring or not obtaining removal from that schedule, it would prefer the powers of nomination vested in Government to be exercised solely in the appointment of a non-official as Chairman.

(3) Whether the Commissioners of municipalities not included in Schedule II desire to retain the option of electing officials to the post of Chairman.

(4) Whether for the purposes of election to the post of Chairman, professional gentlemen whose services are retained by Government, such as Government Pleaders, should be classed as officials or non-officials.

I am now to communicate the following orders of the Governor in Council on these questions.

2. The case of every municipality in Schedule II of the Bengal Municipal Act has been carefully considered, and orders have been issued removing from that schedule 11 municipalities which can, in the opinion of the Governor in Council, be allowed to elect their own Chairmen without injury to the welfare of the ratepayers. Consequently, only 14 municipalities will be left in Schedule II, of which 8 have at present officials as Chairmen. The circumstances of these municipalities are exceptional, and it is considered

undesirable to make any change in their constitution. The Commissioners of some of these municipalities are averse to exclusion from the schedule, and the Governor in Council does not wish to force on them an autonomy which they themselves do not desire.

3. As regards the question whether officials should be elected as Chairmen in municipalities not included in Schedule II, the Royal Commission upon Decentralization in India were of opinion that Government officers should not be allowed to stand for election, since this would, in many places, virtually imply their return. The Governor in Council considers, however, that such an argument cannot apply to the large number of Government servants who exercise no executive control; and he is of opinion that it will be sufficient to lay down that in future District and Subdivisional Officers are not to be allowed to stand for election as Chairmen. At the same time he recognises that cases may arise in which the Municipal Commissioners may consider that the appointment of a District Officer or Subdivisional Officer as Chairman is in the best interests of the municipality. In such cases it will be open to the Municipal Commissioners to request the Local Government to appoint a Chairman under section 23 (2), Bengal Municipal Act, and to recommend the appointment of the District Officer or Subdivisional Officer. Due weight will be given by Government to such recommendations.

4. I am to add that if the District Officer or Subdivisional Officer is a Municipal Commissioner without being Chairman, a position may be created which will lead to difficulty, and that therefore Government propose in future not to appoint any District or Subdivisional Officer as a Municipal Commissioner.

5. I am also to state that the Governor in Council desires that those Subdivisional Officers who have already been elected Chairmen after being appointed Municipal Commissioners by Government should continue to serve as Chairmen till the expiry of their term of office. Similar instructions are not required in the case of District Magistrates, as no District Magistrate is at present an elected Municipal Chairman.

6. With regard to the question whether in the case of municipalities included in Schedule II Government should appoint only non-officials as Chairmen, there is a good deal of difference of opinion

on the subject among the Commissioners of the municipalities concerned, and Government consider it advisable that their choice should not be restricted either to officials or to non-officials.

7. As regards the fourth question, whether gentlemen who serve Government in a professional capacity, such as Government Pleaders, should be placed in the category of officials or non-officials, I am to say that Government have no objection to their offering themselves for election and being elected as Municipal Chairmen.

The Hon'ble Maulvi A. K. Fazl-ul-Haq asked Government to state the principle on which selection is made of Government nominees to local bodies.

Government replied as follows :—

The objects kept in view in selecting Government nominees to local bodies are—

(1) to ensure that different communities and interests are adequately represented ;

(2) to secure a necessary element of official experience ;
and,

(3) to secure the appointment of non-official gentlemen who have not stood for election but whose services are of value in the administration of local affairs.

Government Orders and Notifications.

[Mysore.]

VILLAGE IMPROVEMENT ALLOTMENT FOR 1917-18.

AS recommended by the Deputy Commissioners, the marginally noted amounts are allotted for Village Improvement Works in the districts concerned during 1917-18. The balance, out of the Rs. 1½ lakhs provided for the purpose in the current year's budget, will be kept as reserve to be drawn upon in case of necessity.

	Rs.
Bangalore ..	16,000
Kolar ..	18,000
Tumkur ..	11,000
Mysore ..	10,000
Hassan ..	10,000
Shimoga ..	11,000
Kadur ..	10,000
Chitaldrug ..	12,800

TOTAL.. 98,800

2. The concession of sanctioning as grant-in-aid, half the cost of Village Improvement Works, when the other half is contributed by

the villagers, either in cash or in the shape of labour, is also extended until the end of 1917-18. [Order No. R. 1193-203—L.R. 12-16-214, dated 2-8-1917].

SETTING UP OF STONE POST OR SLAB AT THE
JUNCTION OF ROADS.

Government consider it necessary that wherever new village roads or cart-tracks take off from the existing main roads, a stone post or slab should be set up at the junction indicating the name of the village to which the road leads.

2. In some places this has already been done on the initiative of the local officers but to ensure that this work is systematically attended to throughout the State in a uniform manner, Government are pleased to issue the following instructions for information and guidance:—

1. Every Amildar and Deputy Amildar should first prepare a list showing all the places in his taluk or sub-taluk, where such stone posts or slabs are required and submit a copy of the same to the Deputy Commissioner.

2. He should then invite the co-operation of the Village Committees within whose jurisdiction such places lie, and get the work done with their aid.

3. A Quarterly Progress Report should be submitted to the Deputy Commissioner.

4. The Revenue Commissioner is requested to submit a report to Government after the lapse of a year as to how far the above instructions have been carried out. [Order No. 1899-1917-L. R. 12-7-9, dated 20-8-1917.]

Notes of Cases.

KING'S BENCH DIVISION.

BEFORE LORD READING, C. J., RIDLEY AND LUSH, J. J.

[PIERSON *vs.* ALTRINCHAM, U.D.C.]

A notice was served on the son of a man who had been the owner of certain property fronting on a private road

calling upon him to sewer, level and pave part of the road. The owner had left a will appointing the Public Trustee as his Executor. On the work not being done, the local authority did the work and claimed the cost from the son who disputed his liability. The Court of Appeal held that in the absence of a finding that the son intended the local authority to believe him to be the Executor, there was no estoppel and that the son was not liable.

CHANCERY DIVISION.

BEFORE NEVILLE, J.

[BRISTOL CORPORATION *vs.* SINNOTT.]

A notice calling upon owners or occupiers of houses to do some prescribed work must allow some reasonable time for the doing of the work. Otherwise, the notice is invalid.

Recent Publications.

RIVERS AS SOURCES OF WATER SUPPLY. By Alex. Cruikshank Houston. M.B., D.S.C., F.R.S.E.D., Director of Water Examinations, Metropolitan Water Board, London : John Bale, Sons & Danielsson, Ltd. Price 5s. nett.

WATER PURIFICATION. By Joseph W. Ellms, with photographs, charts, diagrams and statistical tables. Price \$5.00.

STATE SANITATION: A Review of the work of the Massachusetts State Board of Health. By George Chandler Whipple, Professor of Sanitary Engineering in Harvard University. Vol. I. Harvard University Press. London : Milford. Price 10s. 6d. nett.

PRACTICAL SANITATION. By George Reid, M.D., D.P.H. 18th edition. Revised. London : Charles Griffin & Co., Ltd. Price 6s. nett.

SANITATION PRACTICALLY APPLIED. By Harold Bacon Wood, M.D., D.P.H. With photographs, diagrams, statistical tables. Price 12s. 4d.

[A comprehensive treatise useful to Health Officers and Students of Public Health topics.]

KALA-AZAR: ITS TREATMENT. By Upendranath Brahmachari, with a foreword by the Hon'ble Surgeon-General W. R. Edwards, C.B., M.D., Surgeon-General with the Government of Bengal, Butterworth. 8s. 6d. nett.

PRACTICAL ROAD-WORK. By H. T. Wakelam, M. INST. C. E., F. G. S. Wymans. Price 5s. 6d. nett.

THE CO-OPERATIVE MOVEMENT IN RUSSIA: Its history, significance and character. By J. V. Bubnoff. Manchester Co-operative Society Printing Company.

THE PORTLAND CEMENT INDUSTRY. By W. A. Brown. London: Crosby Lockwood & Son. Price 7s. 6d. nett.

Review.*

THERE has been quite a crop of town-planning literature within the last few years, and it is a welcome sign that the engineering profession of India also, here and there, find time to turn from the daily routine of their life and attempt to make their contribution to what has become quite a distinct branch of literature.

Town-planning can be treated in one of two ways. It may be looked at as a mere species of geometrical drawings. Drawing *Kolams* (கோலம்) is a very old and popular art practised by Indian ladies, of which apparently this kind of town-planning literature is a modern branch. The other and the truer town-planning is a historical, human and elevating

* Village Planning. By H. F. Marker L. C. E., Assistant Engineer, City Improvement Trust, Mysore. Government Press, Bangalore.

science, at the head of which undoubtedly stand Professor Geddes' books. It is disappointing but we are bound to state it frankly that Mr. Marker's Book of Village Plans is of the former class.

The book is defective especially in that it does not inspire thought as to extension of villages. The model plans assume a blank unbuilt, open space presenting no difficulties as to water, drainage, levels, forests or hills, and with no old village or town thereon or nearabouts. It is the absolute negation of the theory of growth, and is based on the common but mistaken notion that any people will ever have to plan or model or build an absolutely new village. Even if it were so, the village site would not be a sheet of tracing paper so that one might easily draw the enclosed figures of equal house sites round a common hall.

C. R.



The Local

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Health Education of the Masses.

IT is a common complaint of sanitary officers and others that they find great difficulty in inducing the masses of the people in rural tracts to take ordinary precautions of cleanliness against the ravages of disease. When one visits villages attacked with cholera or small-pox and sees how sick persons are huddled in ill-ventilated narrow and dark rooms, while the rest of the family including the children live promiscuously with the infected people and neglect the most elementary precautions enjoined by the sanitarians, one cannot help wondering why the infection does not spread more widely and more fiercely than it does. The people seem as if they wantonly invite disease into their fold. If you would go and interfere with their careless habits, they would often resent your intrusion. The simplest and most well-meant advice of the authorities is apt to be strangely misinterpreted into the most cunning of savage measures for the destruction of their family. It is recognised that this attitude of the mass of the people is due simply to ignorance and not to a double dose of original sin in them.

It is one of the urgent problems of sanitary administration to find ways and means of curing this crass ignorance, of letting in a little sanitary light into the dark chambers of the ryot's mind. It is the obviously necessary preliminary to all organised sanitary progress in the town and the country. The days when we will have compulsory elementary education for the masses are, we are afraid, still distant. But it is not necessary to wait for that millennium. Reading and writing are no doubt very useful acquisitions; but they are not, if the educationists would pardon us for saying so, essential to decent living. The mind can be educated without books. The old

world religions understood something of this when they so arranged their ceremonials and rituals as to form indirectly a means of civilization and culture, not merely of the spirit but of the body and mind as well. The old Jewish laws are models of sanitary regulations. The ritual purity enjoined in the old world Hindu canon of *Grihya Sutras* is now recognised to have a very sure foundation of sanitary knowledge. They formed the habit and conduct of thousands in right ways of living. Is it impossible for the civilization of the twentieth century to enter the every day needs and activities of the homes of the rustic as well as the townsman in this country and direct them according to the light of its own knowledge?

It seems to us that the main fault of the sanitarian in this country so far has been that he was first and foremost an official and only then a sanitarian. But what we require of him is that he should first and foremost be an apostle of the new doctrines of Hygiene and only secondarily an officer. And the Sanitary Missionary must instil his enthusiasm into every one he meets with and recruit many disciples for the campaign against dirt and disease. He should strive and struggle to create an atmosphere in the villages in favour of his new doctrines; he must multiply converts to his new religion. Just as then the missionary often finds his most valuable converts in the ignorant and the illiterate man of faith, so too he will find that his best disciples come not necessarily from the man who knows how to read and write and overreach his partner in a bargain, but in the simple rustic who believes in his doctrines and endeavours to live up to them.

It is of course a high ideal for a sanitarian. We are sure that many a sanitary officer serving the local bodies or the Government has the required fire and zeal in him, but it is not impossible that the requirements of the administrative machinery stifle such aspirations in him. It will be the part of a wise administration to see if this is so and to set about means of making the department less and less of a machine and more and more of an inspiration.

We believe the various provincial Governments in India are slowly recognising the need of giving more freedom to their sanitary advisers. The sanitary authorities are encouraged to get into human touch with the localities where their services are required. And instead of fulminating sanitary laws they show a tendency to take the people under their hand and show them how simply they can improve their lot. One of the most welcome signs of this tendency is the desire manifested in various places to prepare short and simple lectures on the most elementary subjects connected with sanitation and deliver them to the masses in rural parts and thus to create an atmosphere which would respond to the new ideas with more alacrity than heretofore.

In the Presidency of Madras the Sanitary Commissioner has prepared a series of exceedingly useful little pamphlets which are intended to be delivered as lectures to village audiences with the aid of suitable magic lantern slides. The Madras Government had even ordered the manufacture of special slides for these lectures. And a beginning was made last year to send round a travelling assistant surgeon to lecture in some selected districts on these subjects. We believe that with a little training other touring officers, preferably the sub-assistant inspectors of schools in this Presidency, could be persuaded to make a point of discoursing on these subjects with magic lantern slides. This would be a sort of a recreation to them and to the people. Thus the minds of children in the schools and the ryots in their homes will be awakened at the same time to the advantages of cleanliness, pure water, abundance of pure air and light. They would unconsciously imbibe the new ideas regarding the causation and prevention of the terrible diseases of cholera and small-pox and plague, would derive more confidence in the treatment of the nearest dispensary rather than in the happy-go-lucky treatment accorded to them by the village *vaidyan* or *hakim* . The experiment introduced in Madras of itinerating preachers of sanitation is one in the right direction

and we are glad to note that the Surgeon-General has reported to the local Government that the lectures have been quite a success and should be repeated annually if permanent effect was to accrue from them*. We would request our readers to be good enough to publish in the pages of the *Local Self-Government Gazette* any observations that they may have made about the usefulness of these lectures.

We see from the proceedings of the Bombay Legislative Council that that Government have also considered a scheme of rural lectures on the various topics affecting the daily life of the villagers to be delivered through the agency of their sanitary and educational staff. They have projected a sort of educational campaign in hygiene, including lectures, lantern demonstrations and public health exhibits at pilgrim centres, fairs and market towns, but they have had to postpone the execution of their campaign for want of funds. They hope to inaugurate the campaign when financial circumstances become easier. In the meanwhile they are trying to prepare up-to-date and readable text-books of various grades on these subjects for the use of the various kinds of schools in that Presidency.

We would like to bring home to the minds of our public men the importance of the problem—how best we can bring the ascertained conclusions of modern sanitary science to the imagination of the lay mind, especially to the notice of that large mass of humanity that lives in the villages. The local Governments are prepared to take the first move in attacking the problem. They are apparently prepared to direct their touring officers to shed the light wherever they go. But it still remains for the people to organise their own efforts in this direction. Every educated man is or ought to be a centre for the dissemination of sanitary ideas round about him. We fancy that consciously or unconsciously he is always such a centre; but in this cimmerian darkness of ignorance that has enwrapped our country, it needs an intelligent co-ordination of the efforts of every educated man to bring all his

* Vide G. O. No. 1235 L., dated 29th August 1917 printed under Government Orders and Notifications, (p. 791).

energy and influence to bear upon this problem. We think that in every town of any importance the leading officials and non-officials ought to combine and organise ways and means of bringing a little more light and a little more hope to the minds of their less favoured countrymen. Even purely political bodies like the "Home Rule Leagues" will not find it a misapplication of their energies if they devote some time to disseminate right doctrines in the domain of science as well as in the domain of high politics. The vakil while advising his clients on complicated questions of pending litigation may find it possible to ask them about the health of their family in the village and talk in unpremeditated homely language about the best way of keeping their drinking water pure or conserving the house-refuse into good manure for the fields. They may even drop a word of advice about the advantage and no bother of giving the earliest possible intimation to the authorities about the outbreak of contagious disease in their vicinity.

There is a fashion now-a-days of forming what are called Social Service Leagues in the mufassal towns. These leagues sometimes do wonderfully good work. It should be possible for them to help the various Governments and municipal bodies in making the sanitary administration of the country easier and more advantageous to the mass of the people.

If any of our readers have any definite ideas for carrying out our object, we shall be pleased to publish their suggestions and invite criticisms on them and help them to carry out their ideas into execution.

Planning of Garden Cities.

[BY FRANK KOESTER, CITY PLANNER AND CONSULTING
ENGINEER, NEW YORK.]

THE garden city in its best form is a well organized development, in which from 100 to 500 homes make up a unit, which is intended to grow little if any larger. When additional demand springs up for quarters, a new garden

city is formed elsewhere, and thus the identity of the existing one is preserved indefinitely, and the residents, in the expectation of spending their lives in their own homes, have every incentive to embellish them and keep their grounds in the best possible condition.

The garden city in plan should be laid out in the simplest, yet most attractive manner. There being no traffic of any consequence, the streets should be planned with the degree of irregularity which insures charm. Some of the streets should be winding, while the straight ones should have suitable terminals. Each house should be provided with a spacious garden, as it is from the gardens that such cities take their name. Such gardens, though partially devoted to vegetable raising, should also be well laid out with flower beds, and the whole garden city should be subject to such regulations as will insure sufficient attention being given to the gardens to produce the intended appearance. Grass plots, trees, hedges, shrubbery and arbors should be in abundance both in the front and in the rear of the houses. The neglect of the residents should not be allowed to mar the appearance of the city.

The houses may be quite simple and compact in design, but they should all be individual in character and by no means the frightful rows of boxes, all exactly alike, which are put up for workmen's houses in most rural or suburban places devoted to such purposes.

The economical design of the buildings and the small expenses for streets make the housing cost small, so that the rent may be low or the workman may in a reasonable length of time become the owner of his own home.

Garden cities should be laid out within easy reach of transit facilities, and natural advantages of site should be seized whenever possible to give individuality and charm to the plan.

The sanitary provisions of the garden cities should be carefully carried out, and the details should be simple, but solid in construction and as inexpensive as possible.

A garden city is principally a place of residence, and it should have as few stores as possible, only those of the most necessary character being provided. A school may be the only building of a public character.

In garden cities, however, which are large and located in a more or less isolated position the suburban character is lost, and they become small cities and should be accordingly provided with a great number and variety of stores and public buildings. The city may have its own civic organization, with schools, a library, churches, museum, theatres and the like, and be a complete civic unit.

Garden cities have met with greater success in England than anywhere else as yet, although a greater number and variety of them are in process of formation in Germany.

The principal English garden cities are Port Sunlight, near Liverpool, Bourneville, near Birmingham, and Letchworth, near London, while the leading German garden city is Hellerau, near Dresden. The numerous workingmen's colonies in Germany, which first began to be founded about 1863, are earlier prototypes of the present garden cities, but on a less comprehensive scale and with less open ground.

Road Maintenance: Estimating and Budgetting.*

[BY T. K. T. VIRARAGHAVACHARIAR, DISTRICT BOARD
ENGINEER, KISTNA.]

I CANNOT do better than commence this paper with a quotation from the report on "First International Congress held at Paris in October 1908," issued by Mr. B. K. Finnimore, Superintending Engineer of the Bengal Public Works Department. Various papers were considered

* Paper presented at the Annual Meeting of the Local and Municipal Engineers' Association, and revised by the Author for the *Local Self-Government Gazette*.

by this Congress and certain resolutions were adopted, concerning the present road, the general methods of maintenance of macadam and paved roadways, the struggle against wear and dust, the future road, etc. What concerns us most are the resolutions on the general methods of maintenance of macadam roadways. The resolutions adopted were:—

(1) that the method of complete re-surfacing should generally be adopted, and that partial repairs to the filling of important holes by means of rollers should be done to a very limited extent;

(2) that the material used should be hard and homogeneous and regularly broken; that a suitable binder should be used and as little of it as possible;

(3) that re-surfacing should be done the full width of the road as far as possible;

(4) that experiments with surfaces of materials tarred according to the various processes should be continued.

Of the above recommendations, I shall first consider the last, as it is one which can be speedily disposed of, so far as our financial resources are concerned. Roads of tar macadam, say $4\frac{1}{2}$ " thick will cost us Rs. 20,000 per mile, the width of roadway being 12'. A 3" thickness with tarmac may cost about Rs. 11,000 per mile. After all, their life in this country is still a matter of uncertainty. It may safely be assumed that the cost of re-surfacing with water bound macadam $4\frac{1}{2}$ " thick will on the average be Rs. 2,000 per mile in this Presidency, and the life of this is likely to be four years. Unless therefore the life of a tarmac road 3" thick will be at least 20 years, it is not worth while thinking of introducing tarmac in place of water-bound macadam. Reinforced concrete roads are also coming into use in other countries, particularly in the United States and Canada, where between the years 1909 and 1915 about 7300 miles of reinforced concrete road appear to have been constructed, the cost of which may roughly be taken to be Rs. 365 millions or about Rs. 50,000 per mile. The cost

of constructing one mile of road with 6" of boulder foundation and 6" metalling is about Rs. 10,000 in the Kistna District, which represents perhaps the heaviest cost in the Presidency. This road requires renewals once in about five years and would cost Rs. 4,000 for a 6" thickness. If ferro concrete road 6" thick would last 60 years it may be worthwhile doing ferro concrete roads in Kistna in place of water-bound macadam. Tar macadam 4½" thick costing Rs. 20,000 per mile may be tried if its life is likely to be five times that of the water-bound macadam, *i.e.*, 25 years. If it is so in the Kistna District, where road construction and maintenance are most costly, I doubt if it will be sound economy that tar macadam or ferro concrete roads should be attempted in other parts of the Presidency.

The want of reliable information as to the cost of construction and maintenance of water-bound macadam roads in the various parts of the Presidency and also the want of reliable information on the results of tar macadam or concrete roads wherever such may have been tried in this Presidency, deter one from entering into a useful consideration of the subject. I trust that this Association will gather together the experiences of its various members before the next session.

The other resolutions detailed above regarding complete re-surfacing in preference to petty repairs, and the use of hard and homogeneous road materials, etc., are points we will all fully endorse. But I doubt how many of us can say with certainty that we have been spending more on what we would call important renewals than on petty maintenance repairs. In fact, I believe we have not been keeping a faithful record of our work in this matter. Our disregard of complete re-surfacing arises mostly in attempting to maintain a large length of road with insufficient funds. Complete re-surfacing on a regular programme based on the life of materials is possible only when we are assured of funds to take up renewals in successive order so as to complete a cycle of renewals programme. Sometime back Government asked every District Board about

the adequacy of funds for the maintenance of roads. Then I dare say we all found, or most of us, that our funds were insufficient even to maintain a fraction of the roads placed in our charge. The result has been that we are compelled to devote the major portion of funds placed at our disposal towards urgent petty repairs such as filling pot holes, mending ruts, &c., and only a small portion of the funds is being utilised for complete re-surfacing. It would certainly be very interesting and instructive if all of us can gather figures to show how much of our grant we have been spending for complete re-surfacing—a term by which I mean renewals of full furlongs—and how much on petty repairs including the filling of pot holes and re-picking of ruts, &c. I give in another place the figures for four districts for the year 1915-16.

Our register of roads gives the miles and furlongs renewed each year whether under maintenance, important renewals or special repairs; but the cost of such renewals is not shown therein. As regards the expenditure under actual maintenance, *i.e.*, petty repairs, &c., no figures will generally be available for previous years. I would therefore suggest that we should open a systematic record of the work which we do and the cost thereof, whether maintenance or special repairs, by having charts for the year's working plan and a general road chart.

To secure this a pictorial chart showing the work proposed to be done on a road may be prepared.

Vernon working plan.

This chart may be called the Vernon working plan*. Every kind of repair that the road stands in need of, whether covered by an allotment during the year or not will be depicted on the chart. Officers in charge will then have a complete idea of the requirements of each road. But as the allotment for the year is only a limited sum we will choose such of the repairs as we consider urgent and as can be worked out within the allotment available. In this

* Mr. H. A. B. Vernon, I.C.S., is now the President of the District Board, Vizagapatam, to whom the principal ideas contained in these proposals are due.

chart all the petty repairs will be classed as maintenance works, and the complete re-surfacing or re-metalling will be classed as important renewals. In the remarks column of the chart entries will be made to distinguish the urgent from the ordinary repairs, the urgent ones being those included in the maintenance or renewals estimate and the ordinary ones such repairs as may stand over for want of allotment. Thus a work included in the estimate for maintenance repairs will be marked 'U. M.' 100' \times 12' (*i.e.*,) urgent maintenance; and one included under renewals estimates (U. R.) meaning urgent renewals. Different columns will be opened in the chart to indicate different items of work such as the excavation of catch drains, left side or right side of the road; the excavation of the side drains (left side or right side of the road); collection of materials; spreading and consolidation; re-picking, which means petty repairs such as filling in pot holes, mending ruts on metal roads, picking up broken surface and re-consolidating, &c.

Whenever any changes in this chart are considered necessary owing to monsoon damages, &c., subsequent alterations may be made and reference made in the remarks column of the chart to the estimates relating thereto. Where the actual execution of the work varies from the originally prepared chart, such alterations will also be shown in the chart. Such charts filed in the Engineer's office will be a complete and intelligible record of the work done each year. Copies of these may be given to Presidents of the concerned Boards, to the Assistant Engineer and the Overseer in charge, so that all concerned may know at a glance what work is proposed to be done on a road and during what season of the year. The chart will also show that a bad bit of road not provided for in the estimate has not been left out for want of care on the part of the subordinates, but only for want of funds to take up the work, thereby removing to a great extent the impression that some Presidents hastily form that due notice had not been taken of the requirements of the road.

There is one other point I wish to mention and evoke discussion on. Our financial year is from April to March. In most districts the working season is from January to June. During April and May the subordinates are busy with attending to the preparation of the innumerable annual returns and the maintenance and other estimates. From about the end of June, rains set in and carting is rendered difficult. Further, in the deltas transplantation commences in June and lasts to the end of July when no labour is available for our works. From July to the end of November the rains continue hindering work. In December and even January we have harvesting. Work is done in earnest in January, February and March, and if not hindered by office work, preparation of estimates, &c., this may continue till the end of June. If our financial year coincides with the fasli year, it would considerably improve matters and put an end to the rush of expenditure in the months of February and March, and the consequent inadequate check during these months. Every district has its own peculiar seasons for work. It would make the subject more interesting and instructive if we get together the experiences of all our members and view this question clearly.

I have already referred to the register of roads which gives the miles and furlongs of a road renewed during each year. This register is a confused mass of figures and does not furnish any intelligible information. I should prefer the introduction of a road chart (sample hereto attached) which will show the year and the furlong renewed during the year, the thickness of metal-ling used and the quality of metal and also the amount expended on such renewals during the year. Another column by the side of this will show the petty repairs, &c., incurred under maintenance works and the mile and furlongs where they have been done. The total maintenance cost will also be entered in the chart. A chart like this extending over a series of years will enable us to determine with accuracy the life of a road, *i.e.*, the period of renewals. We will be able to determine what sections of a road have the heaviest traffic,

and how often they require renewals. A good deal of uncertainty which now attaches to our work will be removed and complaints which sometimes are raised against us that the periods of renewals in some cases have been too frequent will also be removed. It may happen that in one year the materials are collected and in the next the spreading and consolidation are done. For purposes of determining the period of renewals it is only the consolidation that is to be taken into account and the chart will show only the consolidation done, not taking into account the date of collection of materials. Detailed information will always be available in the working plan for each year.

The road chart and the working plan I consider most essential to the Road Engineer, as the greater part of his expenditure consists in the maintenance of roads; and a systematic record of our work is essential to maintain a fair name.

Having detailed the changes I advocate in the system of estimating by the introduction of the working plan and the road chart, I shall next consider the budgetting of allotments. It is common knowledge to all of us that each District has got its own traditional way of allotting money for roads. One road is given, say Rs. 500 per mile, and another, Rs. 200 per mile. These figures multiplied into the number of miles and manipulated to the next round figure are the allotments for the roads. No attention is paid to the cost of materials on different roads. The consequence is that some road where the cost of materials is greatest and the allotment inadequate soon deteriorates. The remedy is to be found when a new President takes charge and re-arranges the allotment giving more to the bad roads. But in no case is the allotment worked out taking into consideration the value of materials except perhaps in a very crude way. In saying this I am not speaking at random. Sometime back I requested all the District Board Engineers in this Presidency to furnish me with a statement showing the length of metalled roads, the average value of

materials on each road, the expenditure on renewals and the length renewed, also the expenditure on pure maintenance repairs and some more information required for making a comparative study of the life of roads and the relative expenditure on re-surfacing and on petty repairs. I was fortunate enough to get useful replies from Vizagapatam, Malabar and Tinnevely. A few others gave replies which do not assist me in solving the problem, and many more did not reply at all.

I summarise in the accompanying statement A part of the information furnished by them. Vizagapatam with 548 miles of metalled road is in a position to re-surface its roads once in 6 years spending about Rs. 63,300 each year. It is at the same time able to spend Rs. 54,700 for the petty repairs of 454 miles of roads and masonry works thereon. Malabar with 455 miles is in a position to re-surface its roads once in 13 years spending Rs. 68,600 a year, its petty repairs amount to Rs. 1,01,000 a year. Tinnevely with 418 miles can re-surface all its roads once in 7 years spending Rs. 87,500 a year and sparing Rs. 78,300 annually for the petty repairs of 356 miles. Kistna with 499 miles of metalled road can re-surface its roads once in about 13 years spending Rs. 1,27,500 a year and sparing Rs. 88,750 for petty repairs.

Taking the average cost of materials into account, it is Rs. 4-2-0 in Vizagapatam, Rs. 7-4-0 in Malabar, Rs. 6-8-0 in Tinnevely and Rs. 9-0-0 in the Kistna. But no useful comparison can be instituted, as at present we have no uniformity of procedure in different districts or even in the same district as to the thickness of metal used. It will always be a very difficult matter to institute a comparison. But useful information can certainly be given if we maintain an accurate record of our work. In some districts even a 2" thickness of metal for re-surfacing is used with good results due to the quality of the metal and gravel, the nature of the traffic, and the soil on which the road runs. In other places nothing less than a four-inch thickness is thought of. An opportunity

of comparing notes periodically will be highly appreciated by all.

But as we never get the allotment that we require, it is the business of the Engineer to work out a system of budget which will give each road a fair share of the available grant. We all know that we never have at our disposal sufficient funds to meet all the requirements of our roads. All that we can do is to distribute most equitably the funds placed at our disposal. I propose to do it in the following way:—

Our road metal rate books give the value of materials for every mile of the road. From this calculate the average cost per unit of material for the road. This can be done for all the roads of a Taluk Board or District Board. The average cost of materials for all the roads of Taluk or District Board can also be similarly worked out. Having known the average cost of materials for all the roads, it is easy to find out how many miles of road can be renewed during the year for the total grant available. Deduct from the available grant the charges for spreading and consolidation if it is an appreciable amount. The net amount will be the grant available for collection of materials and can be distributed proportionately to the cost of materials on each road. I have left out of consideration the amount required for consolidation as this is a fairly constant quantity and generally within 10 % of the total grant. In making distribution of grants for each road account will have to be taken of the importance of the road and the quality of the metal available for re-surfacing. It is always a difficult matter to determine the life of the metal and any accurate distribution will therefore be impossible until we know definitely how the life of the metal and the heaviness of traffic affect the road. For this purpose I should introduce a co-efficient which for the present will only be a tentative factor. But the road chart if properly maintained would in the course of a decade or two give us more reliable information so that a more satisfactory value of the co-efficient will ultimately be decided on. In the accompanying state-

ment B, I have shown how this system of budgetting can be worked out. The usual grants for all the roads are shown in the statement and the grants arrived at according to my proposal as well. It will be seen that in some cases the usual allotments differ very largely from those arrived at by me. The condition of the road in such cases endorses the inadequacy of the grants.

To sum up, I advocate

(1) the introduction of the working plan system to make our work systematic, intelligible and comprehensive ;

(2) the transference of the year's work into the road chart which is a continuous pictorial record of the work done on each road ; and

(3) the introduction of a rational system of budgetting so that each road may have its due.

These I consider to be important innovations in our methods of work and likely to bring order and reason in all that we do. By our combined efforts we can elevate our work from the cooly platform to one where skill and intelligence will play a great part.

The problem is complex, the materials we make use of are so varying in character, the country we have to render passable so different in its physical characteristics, the labour we have to deal with presents so many stages of efficiency, and the climatic condition is such a powerful factor, that most of us would feign give up the attempt to make a comparative study of the subject. But there is unity in diversity and continued study will profit us considerably. Nothing but a careful record of our work can enable us to trace this unity.

STATEMENT A.

District.	1	2		3	4	5	6	7	8	9	10	11
		Average cost of metal 100 c.ft.										
		Rs. A. P.					Rs.	Years.		Rs.	Rs.	Rs.
Vizagapatam	..	4	2 0	548	94	63,303	673	6	454	54,732	120	1,18,035
Malabar	..	7	4 0	455	35	68,646	1,961	13	422	1,01,109	240	1,69,755
Tinnevelly	..	6	8 0	418	62	87,482	1,411	7	356	78,313	220	1,65,795
Kistna	..	9	0 0	499	37½ or 38	1,27,475	3,355	13	411	88,747	216	2,16,222

B.—Statement showing the District Board Roads and the Coefficient of allotment for each road on the assumption that Rs. 200,000 will be available for maintenance of roads.

Serial No.	Name of road.	Length in miles.	Average value of metal per unit in Rs.	Col. 3 x Col. 4.	Coefficient depending on life of metal etc.	Col. 3 x Col. 5.	Coefficient of allotment.	Allotment required.	Usual maintenance grant.	Remarks.
1	2	3	4	5	6	7	8	9	1	11
NARSAPUR SUB-DIVISION.										
1	Narasapur Pangdi Road Ss. I and II ..	35	9	315	1.25	394	.073	14,600	16,200 14,100	
2	Koderu Nallacherlu Road Ss. I and II ..	32	10	320	1.50	480	.089	17,800	1,000	
3	Doddipatla Akividu Road Ss. I and II ..	36	12	432	1.50	648	.120	24,000	15,980	
BEZWADA SUB-DIVISION.										
1	Masulipatam Hyderabad Road S. II ..	19	10	190	1.5	285	.057	11,400	12,350 3,000	
2	Great Northern Trunk Road S. I ..	10	6	60	1.0	60	.011	2,200	2,000	
3	Kankipad Gudivada Road S. I ..	9	9	81	1.0	81	.015	3,000	3,600	
4	Great Northern Trunk Road S. II ..	8	8	64	1.0	64	.012	2,400	3,000	
5	Masulipatam Tiruvur Road S. III (29 to 38 Miles) ..	10	13	130	1.25	163	.030	6,000	9,600	
6	Do. do. uplands (31 to 51 Miles) ..	13	6	78	1.0	78	.015	3,000	7,350	
7	Do. do. S. IV (52 to 54 Miles) ..	3	7	21	1.0	21	.004	008		

Reinforced Concrete Roads.

WE cannot understand why engineers in India—European and Indian—do not take to this form of road construction. We have not read or heard of any experiments even. We are not unmindful of the great objections to concrete roads. The chief among them are: (1) the diversion of traffic for a considerable time; (2) the difficulty in opening and closing up trenches for repairs to water and sewage pipes, gas mains, electric cables, &c.; (3) the tendency for the concrete to crack.

There is some reason in the first objection, as the road must be closed until it has thoroughly set. As regards the second, we do not agree that the difficulty is more than in a wood paved or stone sett road on a concrete foundation. As regards the tendency for the concrete to crack, we believe that there should be no cracks if the concrete is properly laid. The subjoined specification for this form of pavement is what is generally adopted in America with good results, and we trust will prove helpful and suggestive to road engineers in this country.

Foundation or sub-grade where soil is wet should be underdrained, the under drains usually 4-inch vitrified tile drains laid with open joints and surrounded with crushed stone to be connected to the nearest stormwater sewer.

The sub-grade to be well rolled with a 10-ton steam roller.

Steel reinforcement to be triangular or other suitable wire mesh placed 2 inches below the top of the finished surface. All reinforcement to be carried within 2 inches of all joints, but not across them, and lap of adjacent widths of the wire mesh to be 4 inches.

Transverse expansion and contraction joints to be spaced 35 to 50 feet apart at right angles to the centre line of the road. Similar joints to be adjacent to each curb. Joints to be com-

posed of bitumen $\frac{3}{8}$ inch in thickness and extend through the entire thickness of the pavement.

Concrete to be one part cement, two parts coarse sand and three parts of broken stone ranging in size from $\frac{1}{4}$ inch to $1\frac{1}{2}$ inches. All materials to be clean and well mixed in a mixer. Sub-grade to be thoroughly wet before placing concrete. After striking off surface of concrete, finish with a wooden (not steel) float. From 12 to 24 hours after the surface had been floated depending on the weather, broom thoroughly with a stiff fibre broom so as to remove the film of cement and expose a good percentage of the surface stone. Then keep moist by sprinkling for at least seven days. The concrete to be not less than 6 inches thick.

Before tarring or applying bitumen, thoroughly clean by brooming and flushing. Apply tar or bitumen by means of a pressure distributor at a temperature of 200° F. and under a pressure of from 60 to 80 pounds to the square inch. The object of using pressure distributor is to obtain even distribution and to drive dust from the surface.

Apply screenings free from dust discreetly while coating is still warm. Apply second coating of tar or bitumen in the same manner as above and cover immediately with screenings. The quantity of screenings for either coat to be about $\frac{1}{100}$ th ton per square yard. Open street to traffic after tar or bitumen had adhered to concrete, generally after 24 hours of application of the second coat.

Roads made in accordance with the above specification in 1915 are reported to be in just as good condition now.

In India, in recent years the kinds and volumes of traffic have changed, and yet the roads have not been designed to meet such changes in traffic conditions. We are not exaggerating when we say that lakhs of rupees have been foolishly wasted in building and maintaining the wrong type of road. When will tax-payers realise the fact that the roads are their property, and that the same care should be given to

expenditure on them as they bestow on their own private affairs? Road making must be recognised as a high-class engineering problem, and entrusted to high-class, and specially trained road engineers amply paid; then and then only will the tax-payers obtain full value for their money, and experience a wise and economical expenditure of road grants.

Social Reform and Slum Reform.*

[BY J. P. ORR, C.S.I., I.C.S.]

I

I AM very glad of this opportunity of addressing the Social Service League, as I have long felt that, though there is great need of slum reform in Bombay, there can never be any great measure of slum reform until there has been a very considerable impetus given to social reform in certain directions. Eight years' study of the slum question in Bombay has convinced me that new legislation on the lines found necessary for dealing with slum evils in Western countries will be required, if there is to be a substantial advance towards the ending or mending of Bombay slums. Let us for the moment, however, put Bombay out of our thoughts and deal with the question of slum reform generally. Let us suppose that we here are a local body solely entrusted with and responsible for the administration of a large town which is suffering from extensive slums mainly due to uncontrolled building operations having created excessive congestion of houses on land. How are we going to set about the task of reducing and relieving congestion?

2. We shall certainly need the aid not only of legislators but also of social reformers: for in these democratic days legislation involving interference with vested interests cannot be put through without the support of the people; and so long as the people are content with existing conditions and are not prepared to insist on improvement, improvement there will

* A lecture delivered to the Social Service League, Bombay, on 3rd September 1917.

be none. Social reform is, in my humble opinion, needed to create such discontent with existing conditions as will lead to the formulation of definite public opinion in favour of the adoption of higher standards in two important matters; (1) a higher standard of comfort, especially for the poorer classes, as regards the admission of light and air to their dwellings, and (2) a higher standard in the sacrifice of private to public interests. It is in these two directions that I should like to see the Social Service League working for the ultimate improvement of Bombay slums.

3. Light and air are Nature's two great healing elements which every one might have gratis *ad libitum* if public opinion insisted on every dwelling room having sufficient open space about it. Such open spaces must be adequate not merely for the free admission of *light* into each particular dwelling room but also for ample perfilation of air between rows or blocks of houses. It is this consideration which has induced modern hygienists to insist in all big cities on the reservation of adequate open spaces in the rear of every house and the reservation of a certain minimum proportion (usually one-third) of each house site as open land. It is this same consideration which makes reformers in town development insist upon some measure of regularity in the arrangement of houses so that there will be long stretches of continuous open land *behind* houses corresponding to the open spaces provided by roads in front, the difference being merely that the spaces in front are public roads serving the purposes of traffic as well as perfilation, while the spaces in the rear are generally made up of private lands not open to traffic, every house-owner, however, getting light and air not only from his own but also from his neighbours' rear open space.

4. It is obvious that in a town which suffers from such a high pitch of congestion that few dwelling rooms get sufficient light and air into them there can be no great measure of slum reform without a heavy programme of demolition and, consequently, the dishousing of large numbers of people.

This will lead to an increased demand for living accommodation outside the area dealt with ; and this in turn will, on the one hand, lead to an increase of rents and, on the other, give an impetus to the erection of new or the extension of old buildings ; and, thus, if we are not very careful, our efforts to decrease congestion in one part will lead to an increase of congestion in neighbouring areas already over-congested, or the extension of congestion to more distant areas not as yet too densely built over. We shall merely have moved our slums, not removed them altogether.

5. Now, it is not a bit of good demolishing slums, if the result is to be the creation of new slums or the intensification of insanitary conditions in existing slums. Preventive measures must therefore precede remedial measures. Our very first step—the step on which all subsequent measures depend for success and without which they will be hopelessly emasculated—must be to stiffen up our by-laws so as to bring building operations under adequate control—the control of the Municipality representing public interests over the building operations of land-owners whose first thought will be for their private interests. This control must be exercised not only over new buildings but also over the extension or reconstruction of old buildings ; for what we want is to encourage building on improved lines so that there may be *sanitary* accommodation available for the people who will be dishoused when we start the inevitable demolition of slums ; whereas if we allow old buildings to be extended on the same bad lines on which they were originally erected, we shall be discouraging building to our new higher standards, because, so long as wages and standards of comfort remain low, the dishoused people will flock to new rooms on old sites rather than go farther out to new rooms for which higher rents are demanded ; and the fear of having many vacancies in the absence of a good demand will make capitalists hesitate to invest in new buildings in outlying estates

6. We are out to reduce congestion where it exists and to prevent it from coming into existence elsewhere. So in areas already built over, it is obviously our first duty to prevent bad from getting worse. The difficulty is to determine what is to be considered bad; and, if we are to be guided by public opinion, we must have social reformers to help us by educating public opinion to demand reasonably high standards of comfort and sanitation. In fixing our standards of open space which are to check the spread of congestion, we must steer between the Scylla of encouraging bad building and the Charybdis of discouraging building altogether, as might be the effect of an unreasonably high standard.

7. In open areas not yet built upon, there will be no harm in looking forward to an advance in standards of comfort and insisting on a standard of open space which, though considered high by a majority now, is likely to be considered, say 20 years hence, the lowest tolerable consistently with the then generally accepted standards of comfort. Experience will show whether the standard we fix is so high as to discourage that extension of buildings in areas hitherto not built on which it is our object to encourage. If this proves to be the case, we shall have to lower our standard.

8. In areas already partially built over but not seriously congested, we can aim at the *ultimate* establishment of the same minimum standard that we have adopted for open areas; but we must allow it to be worked up to gradually.

We needn't interfere with houses that are already built over more than the prescribed proportion of their respective sites so long as bad is not made worse: but we should on no account allow them to be extended, unless they are brought up to standard: and whenever they are reconstructed, the new standard should be enforced. Under this policy the new standard will be *gradually* established as houses are reconstructed, but there will be no interference with old houses so long as they are merely subjected to internal alterations, and bad is not made worse. One great advantage of this policy

that it works by slow and gradual changes, far less disturbing to landlords and tenants alike than drastic changes which often miss their object and do more harm than good. Some people, impatient for reform, will think this policy defers improvements too long; but if social reformers set to work to raise standards of comfort, the demand for lower standard rooms will decrease, and owners, with the prospect of losing rent if they leave their rooms as they are, will be only too glad to improve them up to modern standards. The reduction of congestion through the gradual enforcement, as houses are reconstructed, of new by-laws requiring a higher standard of open space than the old is a very slow process of improvement, but that very slowness gives it one inestimable advantage over wholesale demolition schemes, *viz.*, that it involves far less and far slower dishousing.

9. In densely congested areas the policy of not letting bad get worse is obviously indicated; but here we may perhaps, to encourage early changes for the better, tolerate some lower standard of open space when buildings are reconstructed, provided the reconstruction is undertaken within a prescribed term of years; seven to ten years ought to suffice. The justification for making a difference between the standard in congested areas with high land values and the standard to be adopted elsewhere arises from various considerations the chief of which are—

(i) that the value of land being very high, and dependent largely on the extent of rentable floor area that can be got into a building over a given ground area, the devotion of large areas hitherto built over to open space may connote a far greater sacrifice than in localities in which land is cheap;

(ii) that whereas in open areas builders can design their buildings to suit the requirements of new open space standards, in areas built over they are hampered by the existence of buildings designed to suit lower standards;

(iii) that the higher rents to be ultimately expected as a set-off against loss of floor area will not be obtained immediately; for it takes time (especially in the absence of efforts by social reformers in the education of the masses) to make tenants appreciate the advantages of improved lighting and ventilation and therefore to make them ready to pay higher rents for improved rooms; and

(iv) that a standard of open space somewhat lower than that chosen for general adoption in open areas will still be considerably higher than the existing standard in congested areas, so that its adoption connotes considerable improvement, and at the same time reduces the difficulty of rehousing population when reconstruction is undertaken, because it involves less dishousing than if the higher standard were adopted.

10. In all localities, whether densely congested or not, it is equitable to require every house site to contribute its quota towards the open space of the neighbourhood; and accordingly at least one-third of each house site is in most cities required to be kept open from ground level to the sky; but in the densely congested areas in which we may have decided to tolerate the lower standard, it will probably be necessary in public interests to make one important exception in the policy of non-interference with private property so long as bad is not made worse, *viz.*, in the case of a house site in which more than one-third is open and round which are house sites in each of which far more than two-thirds is built over. In these densely congested areas every little open space is of the utmost importance to the surrounding houses as a lung and should therefore be maintained as such, if possible. It would be most unjust to penalise the owner to whose abstention from building the existence of the open space is due; we should rather reward him for such abstention; but to secure the continuance of the open space as such, we should either acquire his property at its full value so as to obtain the power to keep the space open or, without taking the open ground

out of the owner's possession, we should pay him handsome compensation for the surrender of his right to build on the space. In either case it will be equitable to require the immediate neighbours to contribute towards the cost of the improvement to the extent of the betterment accruing to their properties from the light and air easements which we shall grant them over the open space.

11. Opportunities of exercising this same policy will occur when houses are burnt down in the congested area; and if we can get the legislature to help us, we may extend the policy by acquiring obstructive houses, demolishing them, and converting the sites into gardens or children's play-grounds and levying betterment from neighbouring properties improved thereby as is done in England under section 38 (8) of the Housing of the Working Classes Act. Social reformers can prepare the way for such legislation by stimulating public opinion to protest against individual house-owners being allowed to acquire gratis an unearned increment in the value of their properties from operations entailing heavy outlay from the public purse.

12. We might as well cry for the moon as expect ever to have *large* recreation grounds where there are now congested areas. It is fully recognised by all town developers that the provider of play-grounds must be well ahead of the builder; otherwise prohibitive cost is an insuperable obstacle; but under the policy just sketched it will be quite possible to have in time, dotted all over the congested areas, miniature gardens, the value of which as open air resting places will be out of all proportion to their size.

13. Now suppose we have taken the necessary first steps to prevent bad from getting worse (para. 6), to enforce a sufficiently high standard of sanitation in new estates (para. 7), and old estates not yet seriously congested (para. 8) and to require an advance to some lower standard in old congested estates in which the high value of land would make the higher standard oppressive (para. 9); suppose we have

arranged for the gradual acquisition of small open plots for gardens (paras. 10 to 12), we shall barely have started on the actual reduction of congestion. Can we make a really big advance towards such reduction by forthwith starting demolition on a large scale? No, we cannot. All experience shows the necessity of proceeding very slowly, especially at the beginning of any operations involving dishousing or any other violent interference with the habits of a people. The change must come slowly. It takes time to build houses, and in these days it costs far more money than of old. In order to reduce demolition and consequently dishousing to the minimum, at any rate while cost of building is at its present abnormally high level, we may well tolerate the low standards we have tolerated so long a little longer pending the restitution of normal conditions. We may start acquiring the houses we want to demolish, while the process of preparing accommodation for the people to be ultimately evicted from them is going on; but we must evict only a few at a time, no more than can be provided for in the houses newly built or in vacant rooms in existing houses outside the congested area.

When we have acquired a lot of houses we need not pull down whole blocks except in the rare cases in which the immediate construction of a through road over their sites is a matter of pressing urgency. We can select for early demolition individual houses the removal of which will admit more light and air to surrounding houses and so enable us to keep the latter standing so much longer pending more rapid extension of building operations in outlying open areas. We may even find it possible to let for human habitation in the improved houses rooms which before the improvement were U. H. H.; but before dishousing large numbers we must wait till we can be sure that sufficient new accommodation satisfying adequate sanitary standards is being and will continue to be provided for the dishoused as required; and there are various causes which may operate to delay progress in this. For instance, the owners of outlying estates may prefer to

hold on to their lands till values rise; or they may not have the capital necessary for conversion of their lands into residential estates; or the available land may belong to different owners who can't combine to develop the land; or the prospects of obtaining tenants for new houses may be not sufficiently encouraging.

14. If from these or any other causes the provision of houses for those we want to dishouse is flagging, we shall have to give a lead ourselves. We shall have to buy up lands favourably situated for development into residential estates and undertake development ourselves. That in itself won't suffice, if we can't get builders to take up our land, or if they will only build for the better classes. We shall then have to start building for ourselves; but for many reasons it is undesirable that a public authority should be a large owner of private residences: so our efforts must be by way of encouragement of private enterprise; we want to give a lead only: and we want to get private enterprise to take on the work after we have made a start. Now the first thing a private business enterprise (as distinguished from a philanthropic institution) wants is a good financial return on the capital expended; so our efforts at encouragement will be futile if we can't show that it pays to build. Social reformers can help us by educating capitalists to be not only capitalists but citizens, and as such to introduce into that phrase "it pays" considerations not only of direct private benefit in rupees, annas and pies, but social, moral and indirect financial benefits *to the City*. They may also teach the builder who is not a financier to judge the value of his investment not solely by the immediate return but by future returns and by the unearned increment which in growing cities invariably accrues sooner or later, according as the investment is made in early or late stages of the City's development, from the favourable situation of the property.

15. One of the main difficulties which confronts us in the matter of rehousing is to decide which of the people whom

we must dishouse we shall first provide for. We shall probably decide to help those who are least able to help themselves, *i.e.*, the poorest. Now the trouble about the poorest is twofold. Firstly, they get such low wages that they can't afford any but the lowest rent; and we can't expect them to pay a suddenly increased rent, if we can't at the same time get them a substantial increase of wages. Secondly, they are so accustomed to a low standard of comfort and so ignorant of the dangers to themselves (and since they form such a large proportion of the total population to the public at large) arising from insanitary surroundings that it is very difficult to wean them from their old insanitary tenements and get them to appreciate the wisdom of paying more (even if they could) for a higher standard of comfort

It is here that the social reformer gets his chance: his part is to rouse public opinion in favour of an increase of the poor man's wages and of prohibiting the renting of rooms unfit for human habitation and to educate the poor man to desire a higher standard of comfort and see that he gets it. But even if we get the social reformer to help us, we can't expect to see immediate results; social reform takes time: we can't afford to wait for it; so, though we should lose no time in setting it to work, we must ourselves do something for the poor at once; that means we must face a loss on our capital expenditure for some years at the outset until wages and standards of comfort rise; and to that extent our attempt at encouraging private enterprise in house building for the poor must for the time being fail.

16. We start therefore on our operations for rehousing the poor with the knowledge that they must for a time at any rate involve a financial loss, but with the hope that they may, when wages increase, yield a fair financial return. This hope will never be realised unless we exercise the utmost economy throughout our operations. We can't make palaces for the poor pay. We must choose the cheapest available ground, the cheapest substantial materials and the cheapest

methods of building consistent with the attainment of a reasonable standard of comfort. We must not be over liberal in our expenditure on comforts as distinguished from necessities ; we must utilise as little ground as possible consistently with attaining a reasonable standard of lighting and ventilation ; otherwise, the standard of wages will never rise sufficiently to enable us to show a financial return which will get business men (as distinguished from philanthropists) to follow our example.

If social reformers don't come to our rescue, we may never, even with the most economical building, succeed in showing a return which will attract capital to chawl building from more profitable enterprises : but if we exercise the strictest economy, we may ultimately succeed in making our schemes self-supporting and we shall at any rate have escaped the reproach of having spent public funds extravagantly.

17. Economists hold various views in this matter. Some point out that to house the poor from public funds at a loss is virtually to subsidize private employers from public funds, for which there can be no justification. Others hold that the financial loss from good housing is more than set off by advantages resulting from the better housing of the poor, advantages which are not merely moral, but even financial, where better housing has resulted in reduction of sickness and crime, improvement in birth rates and death rates, and the consequent saving in public expenditure on hospitals and police. They also hold that the subsidizing of an industry, whether in the shape of housing for operatives or otherwise, from public funds is justifiable in a city which depends for its prosperity mainly on that industry.

• In any case we have at the outset at any rate no choice in the matter. If private enterprise won't provide decent houses for the poor we have to displace, we must make the necessary provision ourselves ; but if we can persuade their own employers to house them properly, so much the better.

Influence of Town Planning on the Social Life of the Community.

[BY THOMAS ADAMS.]

WHAT we mean by town-planning is the preparation of comprehensive plans and schemes of development for all kinds of land in both urban and rural territory. The term "town-planning" is therefore somewhat of a misnomer, and is especially so at the present moment in this country, when we find it necessary to lay the emphasis on rural development.

To plan a town or a piece of rural territory will avail us little as a means of improving social and public health conditions unless we have a definite scheme of development in view to follow the plan, and unless there is behind both the plan and the scheme sufficient legislative power to make them effective. In Canada we have had so-called paper planning of all our territory, but it has been worse than useless because it has artificially forced development along lines which ignore both natural conditions and economic use of the land. In that respect our stereotyped rectangular plans are a step backward and not forward in comparison with the irregular growth of the cities and rural districts in the older countries.

What has the planning and development of land to do with the subject of public health? We will consider that question briefly in relation to both rural and urban problems.

Rural Development.

There has been too great a tendency to separate rural and urban questions, and to assume an independence, or lack of relation, between town and country which does not exist. All our questions of development of land and of public health must be studied in both classes of territory if we are going to find a solution for our present difficulties. Land speculation in the country leads to land speculation in the city, and land speculation in building lots in the city causes productive farm

land in the suburbs to be lying unused. The chief defect in connection with our system of rural development in Canada in the past has been that we have planned the rural territory for purposes of speculation instead of for purposes of economic use. Fertile land nearest to the market is destroyed for productive purposes from 20 to 50 years before it is wanted for building purposes. Bad sanitary conditions are created by this forced sale of land in scattered lots because it is impossible to get satisfactory sanitation with scattered development. As speculation is injurious to production it is marvellous that we have waited so long to hear the cry of "dear food," and that our living conditions are as healthy and satisfactory as they are.

You cannot solve public health questions without regard to economic conditions. The fact that 70 per cent. of the wells in rural Canada are contaminated may be a direct cause of disease, but the first causes arise from the want of education, social intercourse and the proper situation of the farm buildings to make rural sanitation possible. The importance of revising our system of planning and developing rural territory may be judged from the fact that our present method has resulted in scattering our population over at least twice the area that is necessary and has thereby caused the isolation which has increased the cost of distributing food and prevented proper facilities being given for co-operation, education, etc. But this has also produced serious physical and moral deterioration.

Investigations made by the Commission of Conservation show that the poverty and degeneracy in the slums of our largest cities is no worse than that which exists in some of our scattered rural territory. Owing to the land in some parts of Canada being unsuitable for agriculture and yet having been settled under our speculative system of homesteading, large numbers of farms have either been abandoned or a degenerated population remain in some districts, unable to get more than mere subsistence. In February, 1916, Sir Wm. Mulock, Presiding Judge at the assizes held in the city

of Peterborough, is reported to have said: "Attention was drawn to the degenerate conditions of people in the back districts of this and the township of Hastings. These people were in poverty, living on unproductive land and the children brought up in an immoral atmosphere.".....In a report which was made at the request of the Judge, astounding revelations were made.

I am not able to do more than merely touch upon this matter and ask the question whether there is any use trying to educate people to appreciate the value of our social institutions and to look after their personal health when they grow up under such an atmosphere and amidst such poverty and isolation. There is no way of dealing with that problem except by beginning at the root. We must both classify and re-plan all land which is not maintaining a healthy population under present conditions, and properly plan and develop all new territory before it is occupied. While there has been a satisfactory increase of population, production and wealth in Canada, there has been an inadequate appreciation of the importance of conserving and developing human resources; to conserve and develop these resources we must have a sound economic foundation, and if this were secured many of our expensive palliatives, which we have to introduce at later stages of development, would be entirely unnecessary.

We have absentee ownership in Canada of the worst kind. In the western provinces over 30,000,000 acres of good land has been granted to persons for residence and cultivation, and is now in the hands of speculators and almost entirely unused. This land is not only idle itself, but it forms a buffer area between the producer and the consumer, as most of it lies nearest to the railways, but as Mr. Albert B. Hart wrote in the Quarterly Journal of Economics, "The land grabber is in most cases simply taking advantage of the chances which a defective system has cast in the way of shrewd and forehanded or unscrupulous men." It is futile to go on blaming the speculator, or to grumble at individual defects in matters of public health, or to promote systems of education,

co-operation, or rural credit, so long as we have the present system of land development at the foundation of our social structure. We have worse sanitary problems in our fishing and mining villages than in our big cities. Many of these are merely problems of land development.

Dr. A. C. Jost, Medical Adviser for Guysboro', N. S., refers to a lack of co-operation of a kind that is altogether too common in rural communities. In his own municipality there is a considerable area of land along the waterfront owned by a corporation. Above this land are numerous rows of building lots, the owners of which are prevented from draining their land through or on the corporation owned land. All the lowest properties on the hillside are liable to contamination from all the properties higher up, and the accumulation of refuse of the whole is washed down the hill during a rainstorm or a spring freshet. Dr. Jost very naturally expressed concern regarding the water supply derived from shallow wells under such conditions.

The only effective way in which we can secure sanitary improvement in our rural districts is by having better standards of public health accompanied by increased municipal responsibility, more co-operation and better educational facilities, but not one of these is practicable to a satisfactory extent under present conditions of land development, and we want to begin to deal with at least all the land that is not yet taken up for settlement.

The three things of vital importance to public health in rural areas are: (1) proper planning of land for health, efficiency, and convenience; (2) education, and (3) co-operation; but the second and third of these things cannot be secured without the first.

Urban Problems.

There are three classes of urban problems with which we are concerned in connection with planning and development legislation and schemes. These are:

- 1.—Vacant land and land in course of development within our cities and towns.

2.—Suburban land within the urban zone of the city or town, but lying in rural territory.

3.—Sites of new towns and villages being developed or likely to be developed in the future.

In connection with land that is already fully occupied by buildings little can be done by preventive methods of development schemes. It is true that this leaves some of our worst problems untouched. For instance, the crowded slum and the narrow congested street in the old parts of the large cities has to be dealt with by other means. For these problems we require drastic housing and public health legislation and very expensive methods. The cost of getting a satisfactory remedy of these established conditions is so great as to be almost prohibitive, but that in itself is an argument in favour of so planning the future development that similar conditions and evils will not be repeated in future. Moreover, we will never educate our people to face the cost of applying proper remedies to existing evils in our cities and country districts until we demonstrate more widely the social and financial advantages of more scientific development.

There is hardly one problem of public health that can be satisfactorily solved under our existing haphazard and expensive system of developing land and with our present legal standards of building construction and sanitation. Medical officers have not shown enthusiasm in accepting that view, and have been too prone to deal with effects and neglect causes of bad conditions. Yet most of their proposals to improve the sanitary conditions of homes is met with the answer that the people cannot afford to pay for a satisfactory standard of equipment and the prevailing reason for this is that too much has been spent on other things that are less necessary and on the cost of acquiring land, owing to building speculation. The money spent on extravagant street systems and on scattered development means so much withdrawn from improving water supplies and sanitary conditions.

Development Schemes.

Development schemes must be prepared to secure

- (a)—Efficiency and convenience ;
- (b)—Health and proper sanitary conditions ;
- (c)—Amenity or agreeableness.

All these relate :

1.—To the city, town, village or rural municipality as organized communities.

2.—To the industry or industries which are the *raison d'être* of every community, and

3.—To the family which is the unit of the social life of the community.

Health and proper sanitary conditions are the most vital of these problems because they touch every one of the objects of schemes at some point and affect every aspect of social life. The efficiency of the human factor in industry is becoming of increased importance as more skilled work is required for productive purposes. Measured by natural resources Canada is a wealthy country, but measured by the human energy and skill it has to apply to these resources it is very poor. Yet we are just as wasteful of our human as of our natural resources. It is impracticable to obtain proper sanitary conditions and health unless there is convenient means of transportation and distribution and ample facilities for recreation. All of these form part of a plan of development. Healthy development also requires separation of factories from residences both from standpoints of economy and health.

Development schemes include in their contents everything that is connected with the growth and development of the urban and rural district. I have only time to refer to one or two of these contents. Such schemes would result in roads being made of economic width in relation to the value and character of the buildings erected on them. At present much congestion on lots takes place as a result of the unscientific development of our system.

Air space should be secured by the scientific fixing of distances between buildings and the amount of each lot that could be built upon instead of by creating wide streets. The latter directly cause crowded conditions, by encouraging lot congestion to pay for the wide streets.

The angle of sunlight should be determined in relation to the height of all buildings and the width of streets so as to secure ample light as well as plenty of air.

Residences should not be permitted to be erected on swampy areas or mixed up in an indiscriminate way with factories.

Standards prescribed for height, character, sanitary arrangements and situation of buildings should vary according to the character of development and would naturally differ in rural and urban areas.

The number of dwellings to be erected on any one area or the proportion of a lot to be occupied by a dwelling should be limited so as to secure the prevention of overcrowding. No lot should be covered by more than 50 per cent. of its area by a residence or 75 per cent. by a business block.

Land should be classified for use for residential purposes, factories, agriculture, etc., and the system of taxation and of planning, and of constructing local improvements should be adjusted to suit different classes of development, instead of being applied under a hard and fast rule without regard to conditions.

One of the purposes of such a scheme should be to transfer large portion of the burden of making local improvements to those who benefit directly from these improvements. We will never get healthy development until we require that sewers and water mains shall be connected with every dwelling in an urban area before it is occupied. Indirectly this would stop injurious land speculation and scattered development.

Schemes must be flexible to permit of change from time to time. We must fit in with natural conditions and injure no legitimate private interest.

As for the method of carrying out schemes, that must be left to be considered by those who are interested in the study of the planning and development legislation proposed by the Commission of Conservation. No such legislation will be of value unless it takes into account that all questions of efficiency, convenience and amenity must be tested finally by the extent to which they promote public health and conserve and develop human life.

Aesthetic results will be secured, but only incidentally. They must never form the main object of schemes.

Finally, no schemes can be promoted on economic lines which have not the safeguard provided by the following section of the draft Act of the Commission of Conservation :

“ Property shall not be deemed to be injuriously affected by reason of the making of any provisions inserted in by-laws or a scheme, which, with a view to securing the amenity of the area affected by the by-laws or the scheme, or any part thereof, or proper hygienic conditions in connection with the buildings to be erected thereon, prescribe the space about buildings, or the percentage of any lot which may be covered with buildings, or limit the number of buildings to be erected, or prescribe the height, character or use of buildings, and which the Department, having regard to the nature and situation of the land affected by the by-laws or provisions, consider reasonable for the purpose of amenity and proper hygienic conditions.”

This means that under the proposed Act no one can claim compensation on the ground that his property was injured by reason of any restriction necessary for a purpose of health. We need legislation to do this, and without it much of your efforts to promote human welfare will be wasted. “You can devote yourselves to no more urgent or patriotic cause than

this. It means that you get the law to place the value of human life higher than the value of property—and it is time we made a beginning in that direction. Why not begin now—when men are dying for our liberties? Which of these liberties is most precious to us, if it is not that of being permitted to enjoy free air and sunshine and the fullest opportunities for healthy physical and moral development?*

Organisation of Health Lectures in the District[†].

I SELECTED an influential committee with the approval of the Collector and the first meeting of the committee presided over by the Collector himself was held on 5th December 1916. The Collector was elected President and myself Secretary and at this meeting a rough sketch of the tour programme for the health lecturer as well as the probable cost of the whole tour was discussed and settled.

The health lecturer reported himself to me on the forenoon of 18th December 1916 and a second meeting of the committee was held on 21st December 1916 at which, in the presence of the health lecturer, the tour programme was definitely settled and given to him.

All the Divisional officers were included as members of the committee so that they might personally interest themselves in the matter and make all necessary arrangements for the lectures in the villages within their jurisdiction.

The Divisional Officers and the Tahsildars selected influential local sub-committees and good sites for the delivery of the lectures in each village in their charge, so that the tour of the health lecturer has been a very successful one both as regards attendance and the interest shown by the people at the lectures. The only difficulty was in getting the services of a capable person to manipulate the magic lantern as the educational authorities could not spare the services of

* Reprinted from the *Canadian Municipal Journal*.

† From the Report of the District Medical and Sanitary Officer, Cuddapah.

any sub-assistant inspectors of schools to assist the lecturer. In the Cuddapah town, the science teacher of the local high school, kindly assisted the lecturer and at my request, as the school was closed for Christmas vacation, consented to accompany the lecturer to Rayachoti. But in January as the high school re-opened for work the services of this science teacher could not be obtained and I therefore with the approval of the Collector, appointed a young, intelligent, motor mechanic of this place who could handle a magic lantern, on a pay of Rs. 15 per mensem plus travelling allowance. He travelled with the health lecturer throughout the tour and I learn that he gave full satisfaction in the discharge of his duties.

As regards the work of the health lecturer, he has lectured in all the towns and villages, except one, programmed for him by the committee and has done his very best in stimulating interest in the people by giving lectures in Telugu and sympathetically explaining everything to those who went to him after the lectures were over. From all accounts I gather that the lectures have been very successful and I am sure the villagers have been much benefited by the lectures. The magic lantern demonstrations had the great advantage in attracting large crowds for all lectures and the people have everywhere patiently listened to the lecturer. A few lectures in important towns were given exclusively for the ladies and were well attended.

I agree with the health lecturer that these lectures to be of permanent benefit for those to whom they are intended should be repeated as often as possible, at least once in 2 or 3 years, and the results carefully noted. If a travelling dispensary were to work in this district, I would suggest that the Assistant-Surgeon selected should be able to deliver lectures in Telugu to the people and should be provided with the necessary slides, the magic lantern being supplied by the Educational authorities. If this is done the good work started by the health lecturer would continue and be of real and lasting benefit to the people.

The health lecturer has lectured in all subjects but chiefly on malaria, water and waterborne diseases, tuberculosis, plague, food, etc. In small villages each lecture was made to consist of two subjects and the lectures were given at my suggestion on diseases chiefly prevalent in those parts.

Lectures on malaria have been given in every place as this is the most widespread disease in this district.

The people in this district are as very backward in education and hence very ignorant and superstitious. The chief reason why cholera breaks out in this district every year and largely adds to the mortality returns, is due to the want of knowledge in the villagers in the rudiments of sanitation. In all villages, large and small, and even in the two municipal towns in this district, the majority of people keep all domestic animals inside dwelling houses, the best and front part of the houses being allotted for them. All the rubbish, cowdung and manure is collected in large heaps or pits in the compounds of houses. These heaps breed flies in enormous numbers and all villages are full of them. The health lecturer has laid great stress on the injurious effects of these filthy practices and shown with the aid of slides how these insanitary dwellings sap the vitality of the people and the seemingly harmless flies are a danger to all communities by carrying about with them and disseminating many of the deadly diseases such as cholera, enteric fever, etc. He has also demonstrated the benefits of a pure water-supply and how contaminated river water brings about an epidemic of cholera, dysentery, etc. As the water of most of the wells in this district is brackish the people generally use river water, wherever possible, for drinking purposes.

Tubercle of the lungs is on the increase in this district for many reasons but chiefly on account of the faulty construction of houses and the materials used. The houses of the poor and middle classes are built of mud and are always leaky. These do not give sufficient protection to the inmates during the rainy or cold season. Almost all houses have only one or

two windows nearer the roofing and the inside is generally badly lighted, dark and ill-ventilated. The health lecturer has shown diagrams of such houses and explained the evils of living inside these houses. The health lecturer having dealt on these subjects fairly exhaustively the people have much appreciated the lectures.

I am of opinion that the Tahsildars and Revenue Inspectors should be given a few lectures on health by turns, on the subjects detailed in G. O. No. 2094 L., dated 20th November 1914, and these revenue authorities in their frequent tours in the villages should point out the sanitary defects to the village authorities and compel them to adopt measures to rectify the same. In case this is done, I am sure that the evils of present insanitary methods being now and again brought to their notice and attention, the people in course of time will readily co-operate with the authorities in keeping their villages clean from a sanitary point of view and be thus benefited.

Travelling Dispensaries in the United Provinces.

THERE were 87 travelling dispensaries working during the year ending with June 1917, out of the 94 sanctioned.

One travelling dispensary is permanently attached to each district except Garhwal and Dehra Dun ; these are known as "district board travelling dispensaries" and are 46 in number. Each district board contributes Rs. 1,000 towards their upkeep, the rest of the cost being borne by the Government. The remaining 41 are known as "provincial travelling dispensaries" and are distributed among eight "circles."

Under normal conditions these travelling dispensaries work in the districts to which they are attached, but on the outbreak of epidemic disease, such as plague, cholera, relapsing fever, etc., they are deputed to the districts in which they are required. Thirty-four travelling dispensaries were thus deputed during the year ending. The ease with which they can be mobilized and concentrated, makes them the most efficient

agency for dealing with an outbreak of epidemic disease. Public confidence in these institutions is increasing every year, as is amply testified to by the extent of their work. Their undoubted popularity with all classes is also proved by the frequency with which the people apply to district Officers or Civil Surgeons to depute a travelling dispensary to their part of the district.

A large number of pamphlets relating to plague, malaria cholera, small-pox, and tuberculosis were freely distributed to literate persons through the agency of the travelling dispensaries.

“If You Don't Kill Me, I May Kill You.”

DR. G. A. JORDON, Assistant Health Commissioner,
St. Louis, writes in the *American City*:

THREE years ago St. Louis undertook a campaign to exterminate those insects which are a menace to public health and life. This year the campaign is being pushed with even more vigor by the St. Louis Continuous Clean-Up and Paint-Up Campaign Association and other prominent health organizations, co-operating with the St. Louis Health Department.

Thus far the Health Department's efforts have been directed mainly to the extermination of the fly and the mosquito, but it is intended in the future to include the bed-bug and the flea in this campaign. The two first-mentioned insects were selected in the first campaign as they are the two most formidable disease carriers, by reason of their power of flight.

The question of the destruction of the mosquito is relatively simple, for the reason that it is only necessary to oil, and keep oiled, the breeding places of the insect. But the question of warfare on the fly is a different proposition. In nine cases out of ten flies lay their eggs, hatch and develop in the city in horse manure. The tenth cases develop in uncovered garbage cans, neglected dead animals, and other

decomposing organic matter. The most important element, therefore, in the extermination of the fly is the elimination of horse manure from the city. This, with the proper handling and disposition of garbage and dead animals, leaves the fly very few places in which to hatch and develop.

The solution of the problem depends on the extent and intensity of the public's co-operation. To this end there has been carried on a vast educational campaign to teach the public, if possible, that the fly, formerly considered merely a pest, is in reality a grave menace to life, and that all efforts toward its destruction must be dependent on the complete co-operation of all of the people, all of the time.

Along these lines St. Louis has worked in endeavoring to educate the public. At the same time the police and the sanitary force have been following up all cases where horse manure was allowed to remain too long in the city, and have seen to it that each householder has properly cared for all garbage and other refuse, pending removal, so that there might be no place left for the possible propagation of flies.

The educational work has been carried on chiefly through the newspapers, public addresses, slides frequently shown in the moving picture houses, the distribution of striking posters and placards, (one of which is reproduced on the next page) and through street car advertising. A street car poster which has caused more than one shudder that will not be forgotten in a hurry shows a huge fly under which are these words, "If You Don't Kill Me, I May Kill You." In addition, each summer large fly traps are maintained at the prominent corners of the main thoroughfares, with placards calling the attention of the passerby to the campaign and soliciting his aid and co-operation.

Our aim is to keep this menace continually before the minds of the people in one form or another until it is so firmly impressed on them that they will look upon the fly with as much repugnance as at a rattlesnake.

FROM FLIES AND FILTH TO FOOD AND FEVER.

ABOUT THE FLY



No sanitary improvement worth the name will be effective, whatever Acts you pass or whatever powers you confer on public officers, unless you create an intelligent interest in the public mind.

Fruit and Vegetables a La Filth

The kind served from sidewalk stands after being exposed to street dirt and flies.

Are you getting this kind of food

The time has come to wage war on the flies and the way to wage war on them is to exterminate the breeding places.

Flies breed in filthy decomposing matter, in our city almost altogether in piles of horse manure. No decomposing matter, no flies.

All manure should be tightly screened or moved at least once a week. Report to us, in writing, any violations of this.

St. Louis Health Dep't.

M. C. STARKLOFF, M. D.,

Health Commissioner.

G. A. JORDAN, M. D.,

Asst. Health Commr.

5,598,720,000,000 is the normal number of flies a single fly will produce from April 15th to Sept. 10th, according to the statement of Dr. L. O. Howard, U. S. Government Expert.

Flies in the dining room usually precede nurses in the sick room.

A fly in the milk may mean a member of the family in the grave.

It is better to screen the cradle and wear a smile than scoff at the precaution and wear mourning.

If one energetic fly can produce by September 10th, 5,598,720,000,000 flies how many flies will one pile of manure produce?

Screens in the window prevent crepe on the door.

If flies were as much feared as bad water there would be less typhoid fever.

Flies are the most dangerous insects known to man, he should be their most persistent natural enemy.

Don't allow flies in your house.

Don't eat where flies are tolerated.

Don't buy from a store infested with them.

Screen your windows and doors, do it early, catch, poison, or kill, all that get in.

Keep the fly out of the sick room and see that all discharges from the sick are at once and thoroughly disinfected.

See that your premises and the premises about you are kept clean.



With acknowledgments to the American City.

POSTER USED IN THE ST. LOUIS FLY CAMPAIGN.

Flies are the most dangerous insects known to man, he should be their most persistent natural enemy. Don't allow flies in your house. Don't eat where flies are tolerated. Don't buy from a store infested with them. Screen your windows and doors, do it early; catch, poison or kill all that get in. Keep the fly out of the sick room, and see that all discharges from the sick are at once and thoroughly disinfected. See that your premises about you are kept clean.

Personal Hygiene.

[By DR. M. R. SAMEY, M.D., D.P.H. (U.S.A.), M.R.S.I. (LONDON).
HEALTH OFFICER, NARAYANGANJ.]

Exercise.

*"Better to hunt in fields for health unbrought,
Than see the doctor for a noxious draught.
The wise for cure on exercise depend,
God never made His work for man to mend."*

EVERYTHING tends to prove that man was destined to lead a life of bodily action. His formation—his physical structure generally, and that of his joints particularly—his great capacity for speed and laborious exertion—the Divine injunction, that "he shall live by the sweat of his brow"—the bodily imbecility and enfeebled health invariably consequent upon sedentary habit—all go to prove that he was destined to lead a life of physical activity. Most people are apt to despise many of the aids to health, because of their very simplicity. A sensible Dervish, in the eastern allegory, well aware of this weakness of human nature to despise simple things, and venerate those they do not understand, when called to the Sultan to cure him of a disease, did not dare to simply advise him to take exercise; but he said to him:—"Here is a ball which I have stuffed with certain rare and precious medicines. And here is a bat, the handle of which I have also stuffed with similar medicines. Your Highness must take this bat and with it beat about this ball, until you perspire very freely. You must do this every day." His Highness did so; and in a short time the exercise of playing at bat and ball with the Dervish cured the Sultan's malady. But it should be remembered that there are a great many cases where medicines must be given to assist nature, besides the employment of exercise to facilitate the recovery of the patient.

Nevertheless, exercise is one of the chief aids of all others I must recommend to be adopted as eminently essential for the remedying of bad health, and of preserving that which is

already good. It is impossible for a healthy adult to be otherwise than active in body or mind, or both ; while it may be asserted with abundant reason that laziness is actually a disease, dependent on some abnormal condition of the organism. A variety of social circumstances may operate to produce an indolent disposition of mind and inactive habit of body, but these also produce a primary condition of ill-health.

The function of respiration, by which the blood is vitalized, and the nutrition of the muscular structure, on which depend all the motive power or strength of the system, are intimately connected with the circulation of the blood, and this with active exercise. Without this, there must be unhealthy accumulation somewhere ; and, as the larger arteries are not permanently dilatable, while the veins and capillary arteries are so, this accumulation or congestion must take place in the veins and capillary or hair-like arteries.

When the circulation is feeble from lack of bodily exercise, or other cause, the blood creeps sluggishly along the minute vessels composing the elementary tissue of the body ; these veins and capillaries become gorged, which engorgement operates as a still further impediment to the free flow of the blood. The blood, when not circulated with due energy through the ultimate tissues, becomes deteriorated in quality, and so, in turn, fails to supply that proper nutrition upon which, according to its degree of purity, all the tissues and functions of the body depend. If the propelling power arising from breathing pure air and using active bodily exercise is not sufficiently energetic, the circulation through the elementary tissue is so slow that the blood loses its healthful arterial hue before it has reached the extremities of the hair-like arteries ; and thus that part of the tissue which ought to be filled with arterial blood is gorged only with black venous blood, from which the proper secretion necessary to the nutrition of the body, cannot be separated, either in due abundance or of a healthy quality. Hence, if this state of congestion be permitted to exist from

lack of active exercise and consequent free respiration, so as to vitalize the blood, there must needs be a speedy wasting of flesh, and all the other phenomena of consumption or any other disease. The strength of the system is intimately connected with the circulation of the blood, as stimulated in its flow by means of active bodily exercise and pure air.

This principle is well illustrated in the effects of gymnastics and training, by which the muscles of any part of the body are remarkably invigorated by regular systematic exercise. People of all trades and occupations find those parts of the muscular system which are habitually the most exercised to be the most powerful.

For healthful purposes all that is necessary is, any way, to exercise all parts of the body to a degree of fatigue without exhaustion ; that is, to a degree which will insure an energetic circulation of the blood throughout the entire economy. All exercises, however, to secure their full benefit, should be coupled either with some object of utility or amusement, otherwise the mind is apt to labour adversely to the body.

When I say that exercise is what is wanted to restore to health the weak and languid, I mean that it is not so much exercise that is wanted as the exhilarating effect which the enjoyment of exercise produces. A man who exercises half an hour unwillingly in his wood-shed, is not benefited in the degree one is who takes an hour's walk for pleasure through a beautiful country.

It is the enjoyment of exercise in which consists its chiefest excellence. It is the diversion of the mind from the ailments of the body. The invalid is thus drawn away from himself.

What can better accomplish this object than amusement? Laughter and lively talk may be said to be a species of exercise—mental exercise—which is very often as beneficial to an invalid as physical exercise. Anything that will induce a fit of laughter must have an influence in promoting an

active circulation of blood, and, as we have seen, it is necessary to health that the blood should be duly ærated and flow with energy through the system. Whatever means may be employed to give rapid circulation to the blood must be conducive to health. I believe, then, most fully in using all proper means of amusement which will cheer the invalid, and thus be a mental stimulus or auxiliary to the preservation and restoration of health.

So, not only are amusements which afford exercise to the mental faculties useful, but occupation—some useful business pursuit, which requires, and hence secures, attention and labour during several hours of each day is absolutely essential to the high sanitary condition of the body, for nothing else will insure so constant, regular, and equally divided exercise for *both* mind and body.

Walking, running, leaping, hopping, dancing, rowing boats, etc., are physiologically adapted to strengthen the whole muscular system. Even boxing and fencing are to be advised when properly regulated. Wrestling is a dangerous method of developing muscular power. Ten-pins, billiards, etc., are excellent exercises, but useful employment is better. Singing, declaiming, reading, etc., are admirable methods of cultivating the vocal powers, and increasing the capacity of the respiratory apparatus. Riding on horseback, hunting, fishing, etc. are all more or less beneficial in the prevention of disease and promoting good health. Riding in easy carriages, sailing in boats, swinging and other passive exercises, are all to be duly considered as remedial expedients for invalids.

Amid the many vicissitudes of fortune and the moral crosses to which female life is doomed, healthful exercise of the body is to be recommended, in order that the material fabric may be fortified against the thousand causes of disease continually assailing the sex.

Woman comes earlier to maturity by several years than man. The tree of life blossoms and bears fruit sooner in

one sex than in the other. It also sooner withers and sheds its leaves,—but does not sooner die. Female life at any period is fully as good,—perhaps a little better in respect to probable duration,—than that of the male. It is during the period of from fourteen to twenty-one years that the seeds of female diseases are chiefly sown—or, at least, that the soil is specially prepared for their reception and growth. The predisposition to infirmities and disorders of various kinds is affected by acts of omission and commission. In the first class need be mentioned the deficiency of healthy exercise of the body in the open air, and of intellectual exercise in judicious studies. The hoop and the skip-rope, even in city homes, might usefully supersede the piano, the harp, and guitar, for one hour in the day, at least. In schools and seminaries there is no excuse—and, indeed in many of them this salutary point of hygiene is ill attended to. The deficiency of exercise in the open air may be considered the parent of one-half of female disorders. The pallid complexions, the languid movements, the torpid secretions, the flaccid muscles and disordered functions, and consumption itself, attest the truth of this assertion. The exercises of small children consist in giving them the largest liberty and plenty of room. The cradle is a most pernicious method of exercising a child to sleep, and should be discarded from every family. For the ordinary or wakeful exercises of a child, the modern “baby jumper” will be found a preferable contrivance. Among the poorer classes, the children, for want of room to stir in, are apt to become sickly, puny, peevish, and often idiotic.

The best time for exercise is in the morning, an hour or so before breakfast, when the stomach is partially empty. If it should happen to be entirely empty, or nearly so, it should be fortified with a cracker or two, or some other light aliment. Vigorous evening exercises may also be employed by persons of sedentary habits with great advantage. “Night-work,” whether mental or physical, is at once a violation of natural order of things.

Thus, if you would preserve your health, you must take exercise, but not exercise exceeding your strength. Remember, the body must be induced to throw off its waste by action before it can be nourished. Nevertheless, it should also be remembered, that exercises of extreme severity are never required in ordinary cases of health, while in disease it must be incompatible with the strength and circumstances that surround the patient. With plentiful bodily exercise you can scarcely be ill,—without bodily exercise you cannot possibly be well. By “well,” I mean the enjoyment of as much strength as may be consistent with your natural physique.

Exercise should be taken to the extent of quickened breathing and sensible perspiration. If in health, walk, when possible, at least from one to two miles every morning before breakfast. The invalid should go out into the open air, and ramble to the degree of strength he may possess, avoiding fatigue.

Exercise gives health, vigor, and cheerfulness, sound sleep and a keen appetite. Indeed, the effects of sedentary thoughtfulness are diseases that embitter and shorten life—interrupt rest—give tasteless meals, perpetual languor, and ceaseless anxiety.

Cheerful exercise, when at all practicable to be taken, whether active or passive, is absolutely an indispensable means to prevent or guard against disease, and to assist in the recuperative action of medicine when the body has become diseased.

Daily Exercise for Young Men.

The following represents about the amount of exercise which a young man engaged in sedentary habits should take each day to keep himself in good health:—

1. Toe-rising and breathing, arms raising, ten times.
2. Lifting one-fifteenth of body-weight dumb-bells, fifty times.*
3. Toe-rising and breathing, ten times.

4. Half-knee bending, fifty times.
5. Toe-rising and breathing, ten times.
6. Dumb-bells backward lifting and holding, fifty times
7. Toe-rising and breathing, ten times.
8. Dumb-bells upward raising from shoulders, fifty times.
9. Toe-rising and breathing, ten times.
10. Dumb-bells lowered from vertical to horizontal at sides, fifty times, resting after each, ten times.
11. Walking two to five miles.

Exercise is the finest appetiser in the world and makes a crust more sweet than the most savoury delicacy, and a draught from the running stream more delicious than the most costly wines.

The Care of the Baby.

XI. Weighing the Baby.*

THE baby should be weighed regularly at least once a week for the first year and the record of the weight kept in a book. The most convenient time for weighing the baby is before the regular bath in the morning. It is well to remember that the record of the baby's gain in weight will be reliable only if it has been weighed at the same hour each time.

XII. The Normal Baby.

An average healthy baby weighs from 7 to 7½ pounds at birth; 15 pounds at 5 or 6 months, and 21 pounds at 12 months. In other words, the baby doubles its weight in 6 months and trebles it in 12 months.

It is 20 to 21 inches long at birth, 25 to 26 inches at 6 months, and 28 or 29 inches at 12 months.

* From a pamphlet prepared by the Committee of the American Association for the Study and Prevention of Infant Mortality.

The previous portions appeared in the July, August and September issues of the *L. S. G. Gazette*.

More rapid gains are noted in the first 6 months than in the second 6 months. The average weekly gain is about 4 ounces.

It sleeps soundly.

Is happy, active, and enjoys using its arms and legs freely.

Begins to follow moving objects with its eyes at the second or third month.

Begins to sit unsupported at the seventh or eighth month.

Cuts its first tooth from the sixth to ninth month; has about 6 teeth at 12 months, 12 teeth at 18 months, 16 teeth at 24 months, and 20 teeth at 30 months.

Walks from the fourteenth to the seventeenth month.

The soft spot or opening in the skull closes between the eighteenth and twenty-fourth month.

Begins to say words like "papa" and "mamma" after the twelfth month, and simple, short sentences at the close of the second year. Children, however, that are otherwise perfectly normal may not begin to speak until a year later than the time stated above, or may present variations from any of the above.

XIII. Contagious Diseases.

The spread of most contagious diseases is caused through ignorance or carelessness. Inasmuch as contagious diseases often cannot be distinguished from the non-contagious, it is wise to separate children from every sick person, young or old, until the true nature of the illness is known. If the disease is contagious, the separation must be kept up. This separation consists in placing the patient in a room by himself and giving him separate wash cloths, towels, and dishes. One person only should care for the patient, and the clothing of this person should be protected by a gown or long apron or sheet when in the patient's room. After caring for or handling the patient, the caretaker's hands should be carefully washed with warm water and soap.

Every person should co-operate to the fullest extent with the local department of health in its efforts to limit the spread

of communicable diseases. Do yourself what you would desire of another parent whose child might be a source of danger to your own family.

So-called colds, such as running nose, sore throat, bronchitis, and the like are easily communicated to children and may be especially serious for the baby.

Do not sneeze or cough in the baby's face. A mother should protect the baby from catching her own cold by tying a handkerchief or piece of cheesecloth over her nose and mouth when nursing or caring for her baby. She should not kiss the baby.

Tuberculosis very often gets its start in infancy. Every effort, therefore, should be made to protect the baby from infection. Common ways of infecting the baby are by kissing it, coughing or sneezing near the child, or by allowing it to sit on the floor where it has a good chance to pick up tuberculosis germs with the dust on its toys or other objects and thus get them into its mouth. It is a good plan to have a separate room or at least part of a room fenced off as the baby's play room, and to cover the floor with a clean sheet each day. Milk from tuberculous cows may also be the cause of tuberculosis in the baby.

XIV. Eye Disease and Blindness.

Many babies within two or three days after birth, occasionally later, have what is commonly known as "sore eyes" or, as the mothers say, "have caught cold in their eyes." The proper name for this condition is ophthalmia and it is caused by a germ getting into the eyes during the baby's birth. The eyelids become reddened and swollen and in a very few hours pus is seen in abundance. All such cases must be energetically and skilfully treated at once by trained physicians. Neglect and carelessness may result in the loss of the baby's sight. The condition can usually be prevented if the physician puts a drop of a proper antiseptic in each eye immediately after the birth.

XV. Vaccination.

Do not forget that the earlier the child is vaccinated, the sooner it is protected against small-pox. It is not possible to know when and where an outbreak of small-pox will take place. It is well, therefore, to be prepared.

The best time to have a baby vaccinated is in its first year. If the baby is healthy it may be vaccinated as early as the third or fourth month.

XVI. Birth Registration.

See that you register your baby's birth as soon as possible after it is born.

XVII. Pre-Natal Care.

By this is meant the care and advice given to the mother before the birth of the baby, in order that she may fit herself to bear and to care for it.

There is no doubt that the welfare of the baby depends largely upon the mother's health and that many mothers would be better able to nurse their babies if they had proper care, food, clothing, and exercise before the babies were born.

In order to secure the proper advice as early as possible, every prospective mother should consult a physician as soon as she knows she is to have a baby. If she cannot afford the services of a physician, she should apply to a maternity hospital or dispensary where competent physicians and nurses are ready to advise and care for her until the baby is born.

If, for any reason, the prospective mother cannot see a competent physician at least once a month during her pregnancy she should send a specimen of her urine to him regularly each month. She must drink enough liquid so that she will pass at least 3 pints of urine each 24 hours. Her bowels should move once a day. Persistent or sudden and severe headaches, swelling of the face or hands, increasing swelling of the ankles must be reported at once to the physician in charge. Any appearance of blood from the vagina demands

instant summoning of the physician. As soon as a woman knows she is pregnant she should go to the dentist and have her teeth put in good condition.

The above statements are the merest outlines of the fundamental care which every woman should have. It must be remembered that if the prospective mothers are intelligently supervised and will report all untoward symptoms at once deaths and disabilities of both mothers and children will be less frequent.

Municipal Commissioner for Moffusil City Municipalities.*

[BY R. S. HARILAL DESABHAI DESAI, B.A., LL.B.,
MUNICIPAL COUNCILLOR, AHMEDABAD.]

THE amendment of the District Municipal Act (Bombay Act-III of 1901) by Act VIII of 1914 to provide for the appointment of a Municipal Commissioner for large City Municipalities has engrafted on our Moffusil Municipal system an institution which, besides being unnecessarily costly, is not only unsuitable but deals a serious blow to the principle of Local Self-Government.

2. The provisions of Chapter XIII A and of Section 23 A and the proviso to Section 24 require prompt and careful consideration.

3. The question deserves to be approached under the following heads, viz.,

- (a) Powers of appointment and removal ;
- (b) Personnel ;

(c) Powers and functions of the Municipal Commissioner, the Corporation, the President and the Executive Committees.

4. One need not be distressed about the designation given to the Chief Executive Officer of large Moffusil

* A Paper read before the first Bombay Local Self-Government Conference, Poona.

City Municipalities. It does not matter whether he is called a Municipal Commissioner or Chief Officer, or Chief Executive Officer. What really matters, however, is the power of appointment and removal.

(a) In the first place the institution of Chief Officer (Chap. XIII) has not had sufficient trial. In Ahmedabad, at any rate, the Municipality was suspended soon after his appointment; and elsewhere it cannot be said that the institution has had sufficient trial.

(b) The appointment and removal of a Municipal Commissioner should always rest with the Corporation. In no case should the power rest with Government. If Government would not let the power of his appointment and removal with the Corporation, it may be vested with a Local Government Board with an elective majority.

(c) As regards the power of removal, the provision (in Section 186 B) about the necessity of such a resolution being supported by not less than three-fourths of the whole number of Councillors is illusory and absolutely unworkable in practice. For instance, the Ahmedabad Corporation consists of 40 Councillors of whom 27 are elected and 13 are nominated, 6 of the latter being officers of Government. With the theory of mandate operating to govern the voting of nominated Councillors, it is absolutely impossible to expect 30 Councillors to support a resolution for a Municipal Commissioner's removal. Consequently the number required should be either half or at the most two-thirds of the whole number of Councillors. As long as our Corporations continue to be as constituted at present and are not wholly elective, the present provisions of Sections 182 and 186 B are entirely unworkable and require amendment.

5. The question of the personnel of a Municipal Commissioner is equally important for several reasons.

(a) An Assistant Collector with rural experience is quite unsuited for the post of a Municipal Commissioner.

He lacks in urban experience and is unnecessarily expensive without being conducive to the efficiency of the executive administration. The conditions at Presidency towns are entirely different. The salary available is attractive enough for an officer of the grade of a Collector and the pressure of public opinion is stronger both on account of daily papers and keen public interest in Municipal affairs.

(b) A young officer with little experience is more likely to be too sure and impulsive about his views on particular subjects than is likely to be safe for public interests.

(c) A member of the Indian Civil Service is more likely to invite unnecessary interference from the Collector and higher officers by his opportunities for easy and frequent intercourse, which is not conducive to the harmonious working of the affairs of a Municipality.

(d) A large part of the executive Municipal administration concerns engineering work in one form or another. In the past, Secretaries of Municipalities, large and small, have been generally men trained in engineering, and their work in Ahmedabad and elsewhere has been very satisfactory.

(e) An Indian officer living in the Municipal area can alone satisfactorily handle the executive affairs of a large Municipality without friction.

These considerations deserve serious and careful attention in the selection of the personnel of a Municipal Commissioner.

6. The provisions of the Amending Act are not only unhappily and vaguely worded, but the powers vested in the Municipal Commissioner by statute are more than ample, and more than one man can wield with efficiency. The powers vested in a Chief Officer by chapter XIII are more than enough for the efficiency of the executive administration. The provisions of Chapter XIII A and of Section 23 A, Clause (2)

and the proviso to Section 24 have resulted in producing an impression on the mind of the Municipal Commissioner at Ahmedabad—

(a) That he is not merely the head of the executive but the head of the Municipality ;

(b) That he is like a Cabinet Minister, the leader of a party, and could send round whips to secure votes at meetings ;

(c) That having been appointed by Government he owes no allegiance to the Corporation, the President and the Executive Committees ;

(d) That as Municipal Commissioner it is one of his functions to report, uninvited, the actions of the Corporation to the Collector and the higher authorities ;

(e) That rules framed under Section 46 Clauses (c), (d), (e), (g), (h), (i), (j) and sanctioned by Government are obligatory on the Municipality without being at the same time obligatory on him ;

(f) That he can safely set at naught the clear statutory provisions of the Act about his functions and powers ;

(g) That he can reside out of or leave the Municipal area without the permission of the Corporation or the President ;

(h) That he can carry on independent correspondence with persons outside the Municipality without the channel of the President of the Corporation.

7. Under these circumstances, it is imperatively necessary so to amend the District Municipal Act as to vest in a Municipal Commissioner of a large Mofussil Municipality the powers of a Chief Officer only as provided for in Chapter XIII. Section 23 A, Clause (2) should be amended so as to vest in him the executive power for the purpose of performing the functions delegated to him by the Act or by the Municipality

subject to the approval or sanction of the Municipality, except when it is by the Act otherwise expressly provided. Again, Clause (b) should be omitted from the proviso to Section 24 and the words "and correspond with Government or Government officers on behalf of the Municipality" should be added at the end of Clause (b) thereof as the function of the President.

Results of Water Waste Prevention in Cork (Ireland.)

OUR readers will admit that true economy does not always mean cutting down expenses, or reducing establishments. Mr. Percy Boulnois, a great English authority on Municipal Engineering, in a paper read last year on the "Maintenance of the Standard of Municipal Sanitation during the continuance of War Conditions" contended that in the matter of water supply true economy consisted not in the diminution in the quality or quantity of water, but by maintaining plant in good order, preventing misuse of fuel and lubricants, and checking leakage and waste. That this sound advice did not fall on deaf ears is illustrated in the report submitted by Mr. J. F. Delany, City Engineer of Cork, in regard to the water waste prevention work accomplished by his department. The following are some of the particulars relating to this, for which we are indebted to the *Surveyor and Municipal and County Engineer* of July 27th 1917. The total number of defects discovered during the waste detection operations were as many as 14,980, and comprised:—pipes broken underground 1,384, pipes broken above ground 1,489, broken mains 96, defects on stop cocks and new fittings 2,060, and various other defects, 9952.

Most of the underground defects existed undetected for many years, and accounted for a considerable amount of water wasted. Over 1,000 water wasting tanks were abolished

and replaced by new ones, which meant a considerable conservation of water. As many as 979 stop cocks were substituted for old and leaky ones.

The results of the campaign may be summarised as follows ; (1) Coal consumption reduced from nearly 2,000 to 1,000 tons per annum ; (2) Consumption reduced from 56 to 37 gallons per head per day ; (3) Daily consumption reduced from 5 to 3 million gallons ; (4) Night consumption reduced from 98,000 to 45,000 gallons per hour. The saving in coal alone reaches a respectable figure in business economy, and by the reduction in waste and misuse of water not only has the pressure throughout the city been increased, but the demand has been brought within the filtering capacity of the water works. Excluding cost of coal economised, the value of water saved when commercialised amounts to considerably over £2,000 per annum.

Here is an instance where with a state of affairs preceding the reform work, the usual course would have been adopted of increasing the supply, enlarging the filters and laying additional mains with an increased fuel bill, or if this was impossible, the consumers would have been put upon a limited or intermittant supply. Mr. Delany however met the situation in a very commendable way. Instead of restricting the supply to the individual consumer, he reduced the coal bill and the wastage, and increased the pressure in the mains throughout the city by a careful and vigorous investigation and search for leakages and defects, and by making good such defects.

His work accentuates the value of preventing waste and defects in a water supply system. We consider that the matter is of vital importance, and that it is a disgrace that any municipality owning a water works should be permitted to allow its system to remain in an unsound and wasteful condition. We have no hesitation in commending Mr. Delany's work as an object lesson to Local and Municipal Boards in India.

The Calcutta Improvement Trust.

THE year under review was the fifth year of the working of the Trust.

The receipts of the year were much better than the estimate, but the expenditure failed to keep level with the budget provision. On the Engineering side it was only Rs. 5½ lakhs against an allotment of Rs. 12½ lakhs.

Work which proceeded satisfactorily during the first six months of the year, received a severe set back through the decision of the High Court, under which the Improvement Trust could not, when executing a street scheme acquire any land outside the alignment of roads, whether for the purpose of laying out the land along the road into suitable building sites, or for the purpose of recouping part of the cost of the scheme by selling at an enhanced price the land abutting on and improved by a new road. A Full Bench of the High Court has, however, reversed this decision, and there should be no difficulty in urging forward schemes in hand.

The plan of the main roads for the City of Calcutta have been finally decided. The estimates amount to Rs. 10·35 lakhs, the nett cost to the Trust being only Rs. 3·25 lakhs. The roads proposed have a total length of nearly 14 miles, with widths varying from 40 to 150 feet, and comprise both new broad inter-connecting thoroughfares and widening of existing roads. Chief among other matters considered during the year were :

(1) Main road and drainage for Howrah, regarding which the Local Government has been addressed, (2) Improvement of the Hoogly Bank for which the proposals of the Chief Surveyor and Valuer of the Improvement Trust have been forwarded for the earnest consideration of Government.

In the direction of providing accommodation for the working classes, little or nothing seems to have been done during the year. We note that in the dwellings built and

reserved for sweepers the top floor remained unoccupied; partly because of the difficulty about water-supply, and partly because the stairs were considered to be dangerous to children. This only proves that if needless expense and perhaps failure are to be avoided, projects for the provision of amenities for the working classes require as much consideration and meticulous care in preparation and execution as schemes for laying out and widening roads.

The dwellings constructed by the Trust gave a return of 1·5 per cent. on the capital expenditure. We would suggest to the Trust to consider whether it would not be more economical and practicable to acquire existing insanitary and congested chawls, and instead of demolishing them and reconstructing on standard plans, to execute such alterations and modifications as would make them sanitary and fit for habitation, and let them to the poorer classes or re-sell them. We believe the Bombay Improvement Trust has recently taken to this form of improvement both in view of the commercial and sanitary advantages resulting therefrom.

The few years' working of the Improvement Trust Act has brought a number of defects to light, and a Special Committee appointed to consider the matter have submitted to Government detailed recommendations regarding important questions which had arisen to justify the amendment of the Act.

Mysore City Improvement Trust.

IN 1912, the Government of Mysore approved of a comprehensive programme of works to be carried out in Mysore City, submitted by the Chairman of the Board, the works spreading over a period of eight years commencing from 1911-12. The Board of Trustees agreed to carry out the following works within five years from 1911-12:—

- (1) Laying of sewers along main roads and thoroughfares in certain areas.
- (2) Complete drainage of certain areas.
- (3) Improvements to the existing sewers in the fort.

(4) Extension of outfall sewer.

(5) Sinking up outfalls and provision of storm water drains.

Of these only item No. 4 was completed. No. 3 has been held in abeyance pending the Government's decision on the question of complete removal of houses in the Fort. The rest of the programme has not been completed, and we agree with the Government that the omission has not been satisfactorily explained.

The amount available for expenditure for the year 1915-16 was Rs. 3·84 lakhs. Out of this amount Rs. 2·51 lakhs was spent on improvement works ; Rs. ·79 lakhs on land acquisition and Rs. ·23 lakhs on advances for house building, the balance being absorbed by establishment, tools and plant.

The improvement schemes comprise laying new roads and extensions, widening existing roads, filling up tanks, improving markets, etc. In addition, ten model houses for the poor were constructed for the first time at a cost of Rs. 10,656 ; and 456 building sites formed.

Progress on the whole has been satisfactory and we guess that the pace would have been faster had not the War intervened, and checked work in the direction of improvements in the drainage of the scheduled areas.

Treatment of Plague by Tincture of Iodine.

FROM the report on Plague Administration in the United Provinces for the year ending 30th June 1917, it appears that reports were received from 30 Districts regarding the treatment of plague by tincture of iodine. 3,866 cases were treated with this drug. Out of these, 1,322 were reported as cured, and 1,760 died ; in the remaining cases the results could not be ascertained. Reports as to the value of the drug in the treatment of plague seem to be very conflicting. From the evidence available so far the value of tincture of iodine in typical cases of bubonic, pneumonic, or septic plague can only be said to be doubtful.

Improvement of Village Sanitation.

THE following regulations made by the district board of Gurgaon, under the provisions of sections 56 and 57 of the Punjab District Board Act, 1883 (for the improvement of sanitation in villages of the Gurgaon District) have been confirmed by the Local Government :—

1. The district board may declare that the following regulations for the sanitation of villages shall be applied to any particular village in the district, provided that no regulations shall be so applied unless at least two-thirds of the landowners in such village are in favour of their application.

2. For every such village a committee shall be appointed by the district board to supervise the sanitation of the village; such committee shall consist of not less than 3 and not more than 5 members. The district board may at any time remove any member so appointed.

3. In any such village no manure or sweepings shall be collected inside the village abadi, but shall be collected at such site or sites as are approved of by the village committee.

4. In every such village no person shall bathe or wash clothes or other articles at any well used for drinking purposes unless the well is provided with an adequate parapet and so arranged that no spilled water can drain back into the well.

5. No person shall make use of the water of any well of which the committee has forbidden the use owing to the well being suspected as a source of infection of any disease.

6. Each member of the committee shall be allotted a defined circle of the village, and shall be responsible for the supervision of the sweeping and cleanliness of that circle.

7. On complaint by a majority of the committee any person who commits a breach of these regulations shall be liable to a fine which may extend to Rs. 10, and if the breach is a continuing breach to a further fine which may extend to

Rs. 2 for every day during which the breach is continued after the offender has been convicted of such breach. Any fine so recovered shall be credited to the district board and expended by the district board for the benefit of the sanitation of the village.

Proceedings of the Sanitary Board.

[United Provinces.]

Hydro-Electric Scheme, Meerut.—The Board resolved that the Hydro-Electric Scheme for the Meerut Municipality be placed in the programme of sanitary works, and that a project be prepared as soon as possible by the Sanitary Engineer in consultation with the Chief Engineer, Irrigation Branch.

Infectious Diseases Hospital, Ajodhia.—The Board resolved to make a grant of Rs. 10,000 for the construction of an infectious diseases hospital at Ajodhia on receipt of a properly prepared project on the standard plan approved by the Pilgrim Committee and after approval of a site for the building.

Rural Sanitation.—With reference to the amended proposals relating to the grants for the encouragement of village sanitation through panchayats and for rural sanitation, the Board “as a result of previous experience was of opinion that no condition should be attached to the grants made from the allotment for rural sanitation and that the Board should, as heretofore, distribute the sum allotted for this purpose at its discretion without any restrictions as to local contribution.”

Legislative Intelligence.

[Imperial Legislative Council.]

CO-OPERATIVE BUILDING SOCIETIES.

THE Hon'ble Mr. V. S. Srinivasa Sastri asked for a statement of the progress made in the different provinces by Co-operative Building Societies, and of the special

facilities, if any, afforded to them by the Local Governments and Administrations.

Government referred the Hon'ble member's attention to paragraph 36 of the Reports on the working of Co-operative Societies in the Madras Presidency for the years 1914-15 and 1915-16, and to paragraph 55 of the Bombay Report for the year 1915-16, and said they had no further information on the subject.

The Hon'ble Mr. V. S. Srinivasa Sastri asked :—

(a) Is it a fact that Co-operative Central Banks mostly lend to agricultural societies for short periods at $7\frac{1}{2}$ to 9 per cent per annum ?

(b) Are Government aware that co-operative building societies for the benefit of the poor require capital repayable in easy instalments over periods ranging from 30 to 50 years ?

(c) Have Government received any representations on the best methods of financing co-operative building societies ?

(d) Are any measures, legislative or administrative, in contemplation to secure the above object ?

(e) Will Government consider the desirability of empowering Municipalities and Local Boards by provincial legislation to grant facilities to building societies—by giving financial aid, by a liberal land policy which will allow of their buying, selling and renting land, and by other suitable means ?

The Government replied :—

(a) The Government of India have no information of the prevailing rates for short-term loans, but Central Banks lend both to agricultural and to non-agricultural societies at rates of interest varying from $7\frac{1}{2}$ to $12\frac{1}{2}$ per cent. per annum.

(b) The Government are not aware that building societies require advances for such long periods as from 30 to 50 years.

(c) and (d). In 1915 the Government of Bombay submitted proposals for the grant of loans by Government to building societies for the encouragement of house building on

approved sanitary lines, but the Government of India were unable to accept them, as they considered that such societies should preferably receive loans from Central Banks or other similar institutions, established for the purpose of financing co-operative societies. The Government of India do not propose to re-open the subject on the information at present before them.

(e) The need for legislation in the direction indicated does not appear to have yet been felt generally and the Government of India are therefore not at present prepared to take any action in the matter.

MADRAS CORPORATION AND EMERGENCY LEGISLATION.

The Hon'ble Mr. V. S. Srinivasa Sastri asked :—

(a) Is it a fact that the Government of Madras have applied to the Government of India for permission to introduce emergency legislation empowering the Corporation of Madras to levy increased property taxes?

(b) If so, will Government be pleased to publish the letter of the Madras Government applying for such permission, or, if this be not possible, to state the grounds on which the permission has been applied for?

(c) What orders have the Government of India passed on the application?

(d) Is it a fact that, under section 95 of the Madras City Municipal Act, 1904, the budgets of the Madras Corporation have to be submitted by the President to the Government of Madras and that Government have the power to pass such orders on the budgets as they think fit?

(e) Do the Madras Government account for the financial condition of the Corporation having been brought to such a pass that emergency legislation for increase of taxation has to be undertaken? If so, how do they so account?

Government replied that it was not proposed to undertake any emergency legislation empowering the Corporation of Madras to levy increased property taxes.

MADRAS DRAINAGE AND WATER-SUPPLY SCHEMES.

The Hon'ble Mr. V. S. Srinivasa Sastri asked :—

(a) When the Madras Drainage and Water-supply Schemes are expected to be completed,

(b) what further sums they are expected to cost, and

(c) how it is proposed to meet the additional expenditure?

Government replied as follows :—

(a) The restricted programme adopted by the Madras Corporation is expected to be completed in 1921-22.

(b) Rs. 50 lakhs.

(c) Probably by loans.

The Hon'ble Mr. V. S. Srinivasa Sastri asked if it was a fact that the Special Works Department of the Madras City Corporation with a Special Engineer on Rs. 2,500 a month at its head was proving a great burden on its resources?

Government replied :—

Paragraph 7 of the Administration Report of the Corporation of Madras for 1915-16 indicates that the Special Works Department involves the Corporation in considerable expenditure. But it is not understood from the report that this is regarded as excessive or due to the pay of the Special Engineer.

[United Provinces.]**DEATHS FROM PLAGUE.**

The Hon'ble Mr. Chintamani asked :—

(a) What has been the number of deaths from plague in each of the districts of Azamgarh, Ghazipur and Ballia in each of the last seventeen years?

(b) What has been the expenditure of (1) Government, (2) district board and (3) municipal money on measures of permanent sanitary improvement in each of the said districts in that period?

(c) What is the nature of the sanitary schemes that have been executed?

(d) Is plague practically endemic in those districts?

(e) Will Government be pleased to adopt special sanitary measures of a preventive character and of enduring value in those districts or to ask the district and municipal boards to do so and to give them adequate financial help?

Government replied :—

(a), (b), and (c). The figures and information are no doubt available in annual and other reports. It is presumed, however, that the object of the honourable member is to draw attention to the need for remedial measures.

Plague is practically endemic in the districts referred to, but general sanitary measures of the kind referred to in paragraph (e) of the question would not be efficacious in reducing its incidence. Plague is primarily a disease of rats and it is conveyed from rats to men by the rat flea, consequently only special sanitary measures directed towards exterminating or greatly reducing the number of rats in houses can be effective in preventing or reducing the disease. The cordial and systematic co-operation of the people in a campaign of rat destruction extending over years, the gradual building by the people of houses for themselves less likely to harbour rats, the careful prevention of access by rats to grain and articles of food, and the enforcement of cleanliness round dwellings and grain stores are the only measures which will be effective in reducing the incidence of plague. Unfortunately, hitherto the people of the provinces have either been quite apathetic or even hostile to the introduction of all such measures, and improvement can only be hoped for as they gradually begin to recognize by experience the advisability of acting on the principles already mentioned.

By accepting inoculation when plague breaks out in the vicinity, the individual can make himself practically safe from plague, and every possible endeavour is made to provide every one with an opportunity of being inoculated if he cares to undergo this trifling operation. Unfortunately, owing to the absence of a large proportion of our medical officers and medical subordinates on military duty, the arrangements for

inoculation and treatment are not as extensive or complete as they certainly would be under more favourable circumstances, but every possible effort is being made to maintain the number of travelling dispensaries available for plague work during the plague season even at the expense of other medical institutions.

LEGISLATION *re* VILLAGE PANCHAYATS.

The Hon'ble Mr. Chintamani asked if the Government of India had been addressed on the proposed legislation for the constitution of village *panchayats* and whether copies of all the opinions, official and non-official, received on the report of Messrs. Phelps and Musanna would be laid on the table?

Government replied as follows :—

The opinions received are still being considered by Government, and it is not yet certain when it will be possible to introduce a Bill on the subject. Possibly the opinions received can be circulated when a Bill is drafted.

Government Orders and Notifications.

[Madras.]

HEALTH LECTURES.

THE Government have read with interest the report submitted by the Surgeon-General on the working of the scheme of lectures organized in 1916-17 with a view to spread popular knowledge of the object and requirements of sanitation and are pleased to notice the large measure of success which was achieved and which is creditable to the officers concerned.

2. Of the two civil assistant surgeons who were deputed to deliver these lectures in villages, one toured in Cuddapah and Kistna and the other in Tanjore and Tinnevely, spending two months in each district. The reports of the Collectors and the District Medical and Sanitary Officers agree that the lectures aroused widespread interest and were much appreciated.

3. The Surgeon-General considers that the experiment should be continued this year in a large number of districts. He proposes—

(a) that four selected civil assistant surgeons should be employed in 1917-18 for a period of six months to deliver these lectures,

(b) that each civil assistant surgeon should spend three months in a district, instead of two months as in 1916-17, and

(c) that magic lanterns should be provided solely for the purpose of these lectures.

The Government accept these recommendations.

4. The Sanitary Commissioner is requested to draw up in consultation with the Surgeon-General, a programme of work for the civil assistant surgeons and to submit it at a very early date for the approval of the Government. He is also requested to state how the expenditure in 1917-18 can be met and to submit a reappropriation statement for the sanction of the Government.

5. The suggestion of the Surgeon-General that arrangements should be made for the delivery of health lectures on the occasion of fairs and festivals at important centres, through the agency of the local sanitary staff under the direction of the District Medical and Sanitary Officer or his assistant, is commended to local boards for consideration. [G. O. No. 1235 L, dated 29-8-1917.]

MADRAS CITY WATER WORKS.

With his letter No. 1422 dated 6th September 1917 the President, Madras Corporation, forwards a copy of the resolution of the Corporation requesting that arrangements be made for deputing Colonel Clemesha or, in case he is not available, Lieutenant Colonel Cornwall or some other suitable expert to inspect and report on the Madras Municipal water-works and the City water-supply. Colonel Clemesha is on military duty and cannot be deputed for the purpose and Lieutenant-Colonel Cornwall cannot be spared from the Pasteur Institute. The Government appoint a committee

consisting of Surgeon General Bannerman (President) and the Sanitary Commissioner and the Sanitary Engineer to inspect and report on the water-works and the supply to the City generally. The Committee should examine carefully the defects of the present system and suggest remedies where necessary. [G. O. No. 1576 M., dated 15-9-1917.]

Recent Publications.

CONSUMPTION: TREATMENT AT HOME AND RULES FOR LIVING. By H. Warren Crowe, M.D., (Oxon.). Adapted for India by C. A. Sprawson, M.D., Butterworth & Co., Calcutta.

MALARIA: ITS CAUSATION AND MEANS OF COMBATING IT. By N. K. Sirkar, Calcutta. Price Rs. 2-8.

THE MENACE OF PLAGUE AND HOW IT MEETS IT. By P. K. Shaw.

SANITATION IN INDIA. By J. A. Turner and B. K. Goldsmith, Bombay. The Times Press. Price Rs. 12.

A PRIMER OF TROPICAL HYGIENE. By R. J. Blackam, 4th edition. Price Re. 1.

AFTER WAR PROBLEMS. Edited by W. H. Dawson. George Allen and Unwin. Price 7s. 6d. net.

THE NEW CIVICS. By Roscoe Lewis Ashley. New York. The Macmillan Company. Price \$1.20.

A TREATISE ON CONCRETE, PLAIN AND REINFORCED. By Frederick W. Taylor and Sanford E. Thompson. John Wiley & Sons.

TOWN-PLANNING FOR SMALL COMMUNITIES. Natural Municipal League Series, New York. D. Appleton & Company. Price \$2.

SHADE TREES, CHARACTERISTICS, ADAPTATION, DISEASE AND CARE. Bulletin issued by the Department of Botany, Massachusetts Agricultural Experiment Bureau.

FREE AND COMPULSORY EDUCATION. Being extracts from the proceedings of the Legislative Council of the Government of Bombay dealing with the Hon'ble Mr. V. J. Patel's Resolution for free and compulsory education, with Bills to amend the District Municipal Act, 1901, and the City of Bombay Municipal Act, 1888, edited by A. V. Thakkar, Bombay.

THE TAXATION OF LAND VALUE. By Yetta Scheftel. First Prize Essay in Economics for 1915. Boston: Houghton Muffin Company. Price \$2.



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The New Mysore Municipal Regulation.

A BILL amending the Mysore Municipal Regulation of 1906 was piloted successfully through the Mysore Legislative Council at a recent meeting by Mr. A. R. Banerjee, I.C.S., Second Councillor of the State. A brief account of the origin and development of Municipal institutions in this important Indian State will, we trust, be found useful to our readers.

The beginnings of such institutions were made in the year 1862 when Municipal Committees were formed for the two cities of Bangalore and Mysore and the experiment was, during the years that followed, extended to District Headquarters towns. These Committees apparently owed their origin to executive orders, but in 1871 legislation was for the first time resorted to and a code of Municipal Regulations was enacted for the Cantonment and Town of Bangalore. Even this code was in force in a revised form only in the Bangalore Cantonment area and its revision for the Bangalore and Mysore cities came much later. At the time of the Rendition, there were 84 Municipalities in the State. The famous Local Self-Government Resolution of Lord Ripon, issued soon after, infected this State also. In Mysore, as in British India, statesmen in those days were characterised by bold and liberal thinking and it is refreshing in these days to read that Dewan Rangacharlu—the first and the foremost of the race of Mysore Dewans, as Mr. Banerjee very appropriately styles him—considered that “there could be no objection, and

it would be proper, that the whole of the members of the Board should be elected by the people" and urged that "the system of Government appointing by nomination one half or one-third of the members was uncalled for and objectionable as it occasions invidious distinctions in the status of members and weakens the moral effect of the elective system." Similar large ideas characterised even the officiating British Resident. He pleaded for election as a principle of choosing the members of these bodies and strongly deprecated the entrustment of their important executive functions in the hands of officials. On the latter point, we take leave to reproduce two sentences quoted by Mr. Banerjee in his speech introducing the Bill. Mr. Girdlestone said: "To reserve indefinitely for officials the higher and more important duties is directly opposed to the idea of independent activity which underlies the whole scheme of Local Self-Government. . . . Local Self-Government here would be only in name and the scheme would be transformed again into the rule of Amildars and Deputy Commissioners." And yet the pitfalls pointed out by these administrators were not avoided and Mysore municipal institutions have till now been more official-ridden and less controlled by public opinion than similar institutions in British India.

In working out the scheme for practical working, the policy of excessive caution and of keeping these early experiments under unnecessary official tutelage, which neutralised in British India the far-seeing statesmanship of the principles enunciated by Lord Ripon, laid a chilling hand on similar endeavours in Mysore also. A member of the Representative Assembly recently pointed out that all Mysore legislation had been a copy of what was done in British India and no better illustration of this can be given than the legislation or attempts at legislation relating to Municipal Boards. A draft was first prepared on the lines of the Madras Act IV of 1884 and published for general information in 1893. But as the Madras Government had by then begun thinking of amend-

ing their Act, this draft was given up and in 1897 a draft Minor Municipalities Regulation was prepared following the provisions of the Central Provinces Municipal Act of 1889. But before this draft was enacted into law, the Bombay Act of 1901 came into existence and a fresh draft based on the latter was made in 1902 and passed into Law in 1906. It is this Regulation VII of 1906 that has now been enlarged and amended.

This Regulation has admittedly failed in its object of placing municipalities on an improved footing. Side by side with the municipalities recognised under the Regulation, others were allowed to exist which owed their existence to executive orders. We find that in the latest review by the Mysore Government (dated 9-6-1917) of the Administration Reports and Accounts of Municipalities for the year 1915-16, it is stated that, out of 89 Municipalities in the State, only 36 had Municipal Councils working under Regulation VII of 1906 and that the remainder—the majority—were administered by councils which were creatures of executive directions. It is therefore no matter for wonder that the official element has preponderated, that the councils are largely under official leading strings, and that the councillors have been provokingly apathetic in the discharge of the duties expected of them. Nor can the excessive interference of officials with municipal affairs be said to have ensured efficiency of administration. The finances have in many instances drifted into confusion. We read, for example, in the review to which reference has been made above, that only 76 per cent. of the demand under all items of taxation was collected in municipalities. This percentage in British India would be put down to rank inefficiency on the part of the municipal executive. In nine municipalities more than 50 per cent. of the current demand was left uncollected in 1915-16. Such a state of things in British India would call forth immediately a Government ukase suspending the municipal councils concerned. But the Mysore Government dealt more generously

payment from the individual who ordinarily devotes himself to Municipal work.

As regards the method of electing Presidents, the amendment that was proposed was that the election should be by the entire body of ratepayers and not by the Councillors alone. The member who moved it made out, it seems to us, rather a good case which was met very weakly by Mr. Banerjee in his reply. The latter quoted the example of British Indian Provinces, in none of which direct election by ratepayers was in vogue, and the mover of the amendment finally withdrew it. We should have preferred the acceptance of this amendment as it would greatly reduce the opportunity for the formation of cliques which often originate in municipal councils at the time of elections of chairmen and as it would make a Chairman less dependent on parties in his council.

On the question of communal representation, we are glad to find that both the Mysore Legislative Council and the representatives of the Mysore Government thereon, pronounced themselves emphatically against it. The demand for communal representation in larger spheres of public activity—the Imperial and Provincial Legislative Councils—has become clamant in the Madras Presidency. The recognition of the fact of Brahman preponderance in such councils and of the necessity of enabling members of communities other than the Brahman not to lag behind in the rapid march of political progress that is taking place, has induced responsible public men to acquiesce in the demand for framing even electorates on a communal basis. The result is a medley of suggestions, arithmetical calculations, and algebraical formulas which bewilder the reader of daily newspapers. No one stops to think how impossible it is to frame electorates on a communal basis in this country and what untold mischief these will, if worked out, produce on the public life of the country and the development of a sense of national patriotism. And after all, where is the *raison d'être* of making the franchise

communal? This is, however, not the place for discussing this with reference to the larger electorates to which reference has been made. There is no justification for introducing it in civic or rural administration and the practical difficulties in the way of devising satisfactory communal electorates are enormous. Communal or clannish motives are generally absent now in actual civic administration. Communal electorates on the lines wanted by those who advocate them would set back the unification of citizens for civic work which has existed for ages. The following remarks of Mr. J. S. Chakravarti, the talented financier of the Mysore State, made during the discussion of this question in the Mysore Legislative Council deserve to be more widely known than they are :

“What are the functions of the Municipal bodies? The several functions are water supply for various purposes, maintenance of roads and drains, making arrangements for sanitation, spreading education, street lighting, etc. Now I ask in all seriousness—where, in this programme, do the religious faith and the social ideas of the individual members of the Municipal body come into play? Are questions of caste dinners and inter-marriage discussed in Municipal Councils? If you want to gather together a team for playing cricket, the selection should be based on the capacity of men concerned to play cricket. Would it be correct to make a selection on some other basis? For example, would it be right to say that you must select two men of fair complexion, another two of dark complexion and another two of a complexion midway between fair and dark and so forth? Or would it be right to say that three of the players must be believers in the Advaita Philosophy, two must be followers of Ramanuja, one must be a Sivite and so forth? Does the Hindu want broad and well-lighted roads and the Muhammadans narrow and dark ones? Does the Brahmin want a low death-rate and the Lingayat or Vaishya a high death-rate? I think it is a libel on any Indian community to say that if elected as the representative of the people in general a member of that community will betray the trust reposed in him and sacrifice the interests of his electors for securing greater privileges for his own community. . . . I cannot but regard the introduction of communal representation

into our Municipal Councils in the way and to the extent advocated by some members as in the highest degree prejudicial to the growth of self-government. Such a step would in my opinion be highly mischievous, exceedingly retrograde and absolutely fatal to the attainment of the best and highest ideal of Municipal Government."

We commend these patriotic and wise observations to the attention of the multitude of correspondents who, during the last few weeks, have deluged the daily newspapers—both Home rule ones and others—with suggestions for communal electorates..

Local Supervision of Dais.

[BY AGNES G. HENDERSON.]

IN these days the question of Infant Welfare is everywhere coming more and more to the front. In Britain, the Local Government Board has recently circularized all Local Authorities, urging them to support schemes for maternity and infant welfare. The Board undertakes to pay grants in respect of (a) salaries of Inspectors of Midwives, (b) salaries of Health Visitors and Maternity Nurses, (c) medical care of mother during confinement, and infant during illness. Throughout the counties and boroughs, the Medical Officers of Health are busy preparing plans in accordance with these generous provisions. It is generally agreed that a complete scheme would consist of:—1. Local Supervision of Midwives. 2. An ante-natal clinic for expectant mothers, and a system of home visitation. 3. A Maternity Hospital, or beds at an existing Hospital, where treatment can be given for complications occurring during pregnancy or confinement. 4. Post-natal work, including complications after birth. Systematic advice and treatment for infants and children.

In India, our task is harder, and our plans must be adapted to the special conditions which prevail. To speak of one only of the above steps, namely, the local supervision of midwives, it is evident that in India this must include not only the trained midwife, but also, the indigenous *dai*.

Sometimes we are told it is unnecessary to deal with the latter as she is fast being superseded by the former. If those who think so would make a little local investigation they would, perhaps, find cause to alter their opinion. In Nagpur, it was ascertained recently that, out of 1,000 cases of childbirth occurring in the homes of the city, no less than 958 were attended by indigenous *dais*, and only 42 by trained midwives or doctors. Surely, therefore, whatever developments the future may have in store, it is at present worth while, when making plans for infant welfare, to try to enlist indigenous *dais* as friends and not as enemies.

The method of doing this will vary in different Provinces according to the local customs, and the castes of the *dais* themselves. In Nagpur, where other methods had proved unsuccessful, we tried the plan of visiting the *dais* personally in their own homes and inviting them to a private house in the city. In this way a small beginning was made with *dais* of the Mang community, as it is found they attend more than half of the maternity cases. Very simple training is aimed at, and instruction is given more by spontaneous and mutual discussion than by systematic lessons. They are urged to come up twice a week to report cases they attend. The nature of the delivery and the condition of mother and child are recorded and any special point is discussed. Cases are registered in a Case-Book and are visited within a few days by an inspecting Nurse who brings her own report of mother and child. A copy of the registrations is sent weekly to the Municipal Offices. *Dais* receive four annas for each case if mother and child are both found well. At intervals of some months, simple lessons from a book and demonstrations on a model are given. The *dais* are instructed as to cleanliness and are encouraged to provide themselves with soap, blunt pointed scissors, and clean ligature material. They are taught about the signs which indicate the need for skilled assistance and are asked to call for help in such cases from us or from the nearest Hospital, or to take the patient to Hospital.

Instead of having the *dais* formally examined and "passed out" (and lost touch with) it seems to us more valuable to give the same simple instruction to the same *dais* for some weeks annually, to keep in touch with them all the time by means of the regular reporting of cases, and thus to ensure continuous supervision of their work. The *dais* are urged to send their children to a school which has been opened for them in the belief that if even a few of the next generation receive simple education it will help on matters.

So far, this plan has been worked from a private house, previous attempts to get *dais* to attend a hospital regularly for classes having been a failure. But it would be more ideally worked from a dispensary or dispensaries to which *dais* could bring up expectant mothers who might be ailing. And if the dispensary had beds attached, practical instruction could be given from maternity cases.

The expense of the scheme was met from the funds of the United Free Church of Scotland Women's Medical Mission, aided by a grant from the Victoria Memorial Scholarships Funds, and by private donations.

In 1915 over sixty *dais* were attending; 1,874 maternity cases were reported and inspected; between twenty and thirty children attended the school. The Maternal Mortality was 16 (plague 6, dysentery and diarrhoea 3, phthisis 1, puerperal causes 6). The Infantile Mortality was 147—of these 44 were dead-born (premature 38, full-term 6) and 103 died within 12 days of birth, from causes not always accurately ascertained.

We much need more highly trained and educated women—both nurses and voluntary workers—to visit in the houses. When we have an awakening of Indian women to the need for trained and supervised *dais*, considerable progress will be made in the battle against infantile mortality.

We have been cheered by finding that occasionally a village *dai* (on a visit to one of her town relatives) would come of her own accord to discover what we were doing. And two

or three *dais* from villages near by have come in and stayed for some weeks to be taught a little. They have asked us if we would not visit their villages regularly. It would be excellent if this could be done, as outlying villages supply some of the worst cases of neglected labour that we have to deal with.

Whether training should be compulsory and whether midwives should be registered are subjects beyond the scope of this paper. All we have attempted has been on voluntary and tentative lines, and from this experimental period the following conclusions would, so far, seem to emerge:—

1. It is worth while to try to gain the confidence and co-operation of indigenous *dais*.
2. Training should be exceedingly simple and elementary.
3. Supervision should be continuous.
4. They should be urged to send their children to school.
5. There is need for an awakening of public opinion in the matter of supervision of *dais*.
6. Village as well as city centres are desirable.

Social Reform and Slum Reform.*

[BY J. P. ORR, C.S.I., I.C.S.]

II.

THE next question which arises is—where are we to find land for chawls for the poor? There are many knotty points, which have to be taken into consideration here. In the first place, we must find vacant land; for to select land already built on with the idea of replacing the existing houses by chawls would only add to our rehousing task. Next, vacant land must be near the slum from which we are evicting the poor; for the average Indian workman is a very

* A lecture delivered to the Social Service League, Bombay, on September 3rd, 1917. The first part appeared in the last issue of the *Local Self-Government Gazette*.

difficult person to move from his old haunts. He doesn't notice deterioration in his surroundings and doesn't see any reason for leaving a place which was good enough for his father. If we get him to move at all, we certainly shouldn't get him to move *far*; and until wages are raised, he won't, even if communications are improved and means of transit cheapened, be able to pay for carriage to and from his work; so he must be within easy walking distance of it. Here again is a chance for the social reformer to help by persuading the workman to live outside the congested area, even if that entails a long walk to his work. He can impress upon him the advantage of having open recreation grounds near where he lives and the impossibility of having any near where he works, if his working place is anywhere near the heart of the City, where the demand for shops, godowns and business premises makes the cost of devoting such land to recreation grounds prohibitive. The workman won't himself except on holiday get much benefit from the recreation grounds, if they are far from his working place, and if he has long hours of work and has to spend much time on the journey to and from home; but his wife and children will, and that is a very important matter to him. His own share in the benefit can be increased if the time he has to spend on journeys to and from work is reduced; and the social reformer can agitate this point for him and try to get wages increased and communication between business centres and suburbs by rail and road improved.

2. A further difficulty about finding a suitable site for workmen's chawls arises from the consideration that in the pursuit of economy in town development costly land ought always to be put to its most paying use. We have to bear in mind that our operations will increase the value of the land in the congested areas; for there the land derives its value largely from its situation on account of demand for housing accommodation near business centres. Our operations are *ex hypothesi* directed towards reducing housing

accommodation in a given area ; and consequently, unless the demand is diminished (which is unlikely, except where we can move a business centre) the value of the land must go up. This is a good thing for us as land owners ; but it carries this disadvantage, that we can't, without considerable sacrifice, house our poor in the areas we improve. Land of high value ought from an economic point of view to be devoted to buildings which yield high rent : but we can't get high rents from chawls for the poor ; and moreover the location of such chawls on any area tends to depreciate plots in the immediate vicinity. We should therefore be glad to escape the necessity of rehousing the poor in or near the congested area. We shall however have to make some sacrifice for the better housing of the poor ; for we can't expect a private owner to make any : and we can't expect the social reforms which are to get higher wages for the poor to take effect very quickly : so, unless the sacrifice is made from the public purse, the poor will not be provided with housing in or near the congested area. We must therefore make up our minds to acquire vacant land as near the congested area as possible for chawl-sites, without considering what user will pay best in it.

3. We shall probably find it best to minimise the sacrifice by selecting sites which are necessarily of comparatively low value by reason of being in divided ownership and not easily accessible from main roads, and, for preference, sites so situated that the area of land depreciated by the erection of chawls will be reduced to a minimum, *e.g.*, sites next to railways or graveyards or other open spaces. These have the additional advantage that there is so much open space available for the ventilation of the chawls without our having to buy it. As to the size of the site, we shall do well to err on the high side, so as to be in a position to extend our buildings if the site proves popular. If it does not, we can lease the land for other purposes or, if our funds permit of the sacrifice of revenue, convert it into a recreation ground. Pending completion of

our first pakka buildings, part of the site can be used for temporary structures; and here again is a reason for taking up a large plot at the outset; for temporary ground floor structures to accommodate a given number of people take up more room than permanent storeyed houses for the same number.

4. We shall do well to start our chawls in several different sites according to the situation of the places from which we want to remove the poor; but in no one locality should we start building too large a number of chawls simultaneously; otherwise, we run the risk of having our chawls vacant. Very little suffices to create a prejudice against new quarters in the mind of the average Indian workman, especially if there is also to be a change of neighbours or a change in such old ingrained habits as the holding of rent in arrears, emptying the remains after meals out of the window, dumping of rubbish anywhere, and so on. Unless we make the chawls very attractive in situation, general amenities and above all in rent, we run the risk of having them empty on our hands, particularly if the workman has anywhere also to go to on his own when we dishouse him.

5. Here arises an important point which I might perhaps have noticed before. How far are we to interfere with the evicted workman's right to go where he pleases? Echo answers "not at all"; but that doctrine must be accepted with certain limitations in a crowded Indian city, so long as social reform has not succeeded in removing the workman's ignorance and raising his standard of comfort. If the average Indian workman of the poorest class is left to himself, he'll make just any hole do for his residence, particularly if he hasn't got his wife and family with him; so in his own interests no less than those of the public health it is necessary to legislate against the letting of rooms that are dangerously insanitary for human habitation. The evil resulting from congestion of houses on land are bad enough without being intensified by the evils resulting from overcrowding of rooms

with people. So legislation must be directed towards not only the closure of rooms that are unfit but also the overcrowding of rooms that are fit for human habitation. Until this has been provided for, it will be most dangerous to embark on the dishousing of the poor on any large scale, dangerous not only to public health but also to our whole scheme of reform both financially and otherwise. Our measures for preventing extension of insanitary buildings will be stultified; for the poor will flock into these buildings and overcrowd the rooms; the landlords will raise rents and get rents for passages and store rooms and odd corners that yielded nothing before; and when we come to acquire their houses in their turn we shall find the rents at their maximum and we shall have to pay far heavier compensation for them than if we had acquired the houses before we dishoused the poor from neighbouring houses. No; if we cannot afford to wait for a rise in the standards of wages and comfort, we must legislate against overcrowding before we start to dishouse the poor, whether room by room or house by house; and when we start, we must follow the same principles with the poor as with other classes, viz., make rehousing keep pace with dishousing, and, if rehousing is not carried on fast enough by private enterprise, we must either retard dishousing (if not stop it altogether) or ourselves undertake the erection of new homes for the dishoused.

6. So much for the poorest classes whom we turn out of slums. What about the other people we displace—those whose housing is left to private enterprise? How are we to help them? Houses will have to be built for them outside the congested area; and the farther we have allowed the congested area to be extended, the farther they will have to be removed from their original houses and therefore probably from their places of business. Here comes in the value of good communications in a town.

The worse our communications, the greater the hardship of taking people far from their place of business and there-

fore the greater the demand for, and consequently the value of, the land nearest to the congested area; and this means high house rents. On the other hand, the better our communications, the less objection people will have to living farther from the congested area and the more land is available to meet any demand for new buildings outside the congested areas; and therefore the more owners share in the appreciation of land values resulting from this demand. At the same time this appreciation being distributed over a large area, the rise in square yard value is moderate; and this will ultimately mean moderation in rise of house rents, a great desideratum in the extension of towns.

So then if we want to turn a large number of people out of a congested area (which is necessarily the case if the problem of congestion is to be seriously tackled), we must in the first place improve means of communication between business centres and lands capable of development into good residential estates. Our new through roads must on no account be narrow roads.

The lesson learnt by experience in town development in England is that the very highest standard of construction must be insisted on in main roads for through traffic, while a lower standard may, to reduce cost, be permitted in minor feeder roads and a much lower standard in purely interior roads within residential estates. The main roads must be broad roads built with a view to the maximum conceivable expansion of through traffic in the next 50 years: the feeder roads may be less broad and the estate roads may be as narrow as 20', provided that the houses along them are set back at least 10' from the road, so that there may be no buildings to remove if it ever becomes necessary to broaden the road to 40.

7. In these days of rapid improvement in electric railways, tramways and motor cars, the mere proposal to construct a broad road connecting suburbs with a big business centre is sufficient to send up the price of land along the route and encourage owners of hitherto unutilised land to develop

it into residential estates. But here comes in a great danger. I have assumed that we commenced by formulating by-laws to secure adequate control by the public authority over building operations. If we haven't done this first before we notify our projects for improving main communications, we run the same risks in the outlying areas as in the immediate vicinity of the slum area we are going to clear,—the risk of creation of new slums or of suburbs which will soon deteriorate into slums; our new roads designed for the ultimate relief of congestion will be conducing to the creation of new centres of congestion: once again we shall be merely moving slums instead of removing them altogether.

We must minimise this risk, if we have got sufficient capital at our command, by buying up along the route of our improved main roads cheap undeveloped land especially low-lying water-logged land which the owners are not likely to develop. This by levelling, draining, etc., we can convert into residential estates for the accommodation of the people we are going to dishouse; and there we can establish our own standards of sanitation to attract the people away from insanitary estates; but to say nothing of the enormous capital expenditure this would involve, it is far better to avoid expropriation of private owners and leave them to develop their own estates under the control of the local authority with the assistance perhaps of a Town Planning Act; so we will stick to our original assumption that the by-laws have been properly strengthened before the improvement of communications has been undertaken.

8. Our broad roads will benefit all classes, but especially the rich who can afford to keep motor cars; and the rich will need no more help from us. For the poor who cannot help themselves we have decided to build houses. What more can we do for the middle classes? We can help them to help themselves by stimulating, even to the extent of subsidising, co-operative building societies. In England an

immense amount of good has resulted from the building society movement and especially from the extension of that form of co-operative building society known as "Copartnership Tenants," which is specially suitable for lower middle class people who can never hope to be individually owners of houses. Under the methods of "Copartnership Tenants," the members become not individual owners each of his own house but collectively joint owners of many houses by virtue of the shares they hold in the Society. All building societies aim at providing their members with good houses in good surroundings on the easiest possible terms; and one great advantage that individuals secure by getting their houses through societies is that they can be sure of having surroundings which are not only sanitary from the outset but are secured from deterioration in future by the society's estate development and maintenance rules by which all members are bound. The Society's estates are laid out in regular up-to-date sanitary lines; every tenant has to think not only of his own but also of his neighbour's interests and to contribute something towards the general amenities of the estate; and the profits of the society are generally spent on the estate for the benefit of the tenants. The small owner who invests his capital in the purchase of a home in such estates is free from the fear of deterioration and depreciation which must always haunt the man who buys a small plot of land in a locality in which he has many neighbours each bound up in his own interests and free to build where he likes and to extend his buildings as he pleases without regard to the effect of such building or extension on his neighbour's interests or on public health, convenience or safety. It is for social reformers to explain the advantages of housing societies to would-be small house-owners and to persuade owners of large estates to develop them not plot by plot as good offers come in, but in large groups of plots regularly arranged with building lines and open spaces laid down with a view to their permanent maintenance as sanitary estates for the benefit and beautification of the City.

9. Assuming then that we have got our model by-laws; that we have made or arranged for the necessary improvement in main communications and means of locomotion; that we have acquired and developed along the main through roads our own estates; that our tenants either individually or through building societies have erected or are ready to erect on our estates sufficient houses for the accommodation of the people to be evicted or attracted from the congested areas; and that we have built a sufficient number of chawls to justify a start in the dishousing of the poor, after strengthening the law so as to prevent them from merely migrating from one slum to another; can we now at last make a substantial advance towards that ending or mending of the slums, which is the end and object of all these preparations? Yes, we can, if we have unlimited capital at our disposal. But our first difficulty will be to determine where to begin. There won't have been much done towards reducing congestion during the long years taken up by our preparations; indeed if we haven't applied at the very outset the principle that bad must not be allowed to get worse, congestion so far from being reduced or checked will have spread to new areas previously unaffected. Where then are we to first acquire and demolish? In the heart of the congested area or on the outskirts? In the poorest quarters or in the richest?

The answers to these questions will of course be different in different cities and vary according to varying local conditions.

10. If we find it difficult to raise the capital required for our operations, it will be best to take up the work where the initial outlay will be least, *i.e.*, in the least congested parts, which will probably be on the outskirts of the central congested area or in isolated centres where congestion is only just beginning to become serious. Here both land and houses will probably cost less to acquire than in the centre, and a larger area can be improved with a given sum of

money. Moreover, the dishousing and rehousing problem will be less formidable here than where far larger numbers have to be shifted.

11. If we have unlimited capital at our disposal, we may think it better to leave the outskirts where conditions are not so seriously in need of early improvement as elsewhere and go at once for the most congested areas which need the earliest possible reformation. It may be that by wholesale demolition over a wide area there, we may succeed in removing some well-defined disease centre which is a danger to the whole city. The trouble is that this will probably involve the dishousing of a very large number of people; and we may find ourselves pulled up by the accommodation for them in new houses or in vacant rooms in old houses running short; for we mustn't suppose that houses will be built far ahead of demand; so we mustn't put too heavy a new demand upon the market all of a sudden.

12. If we have to choose between one specially congested spot and another, we shall do well to choose that in which *ceteris paribus* the buildings are arranged in regular lines to one in which they are in higgledy-piggledy disorder; for in the former such improvements as the substitution of sewers and water-closets for overground drainage and privies can usually be far more easily, rapidly and cheaply carried out than in the latter. In the former the whole character of the slum may be changed and immense improvement effected by merely clearing a 20-feet space between the backs of the houses, laying a sewer there below ground and converting the surface into a children's playground, while at the same time supplying houses on both sides with means of perfilation of air between them and admitting ample light and air to all the back rooms, whereas previously the front rooms were the only rooms in the house which were properly lighted and ventilated. Here one great advantage will be that dishousing will be reduced to a minimum. The contributions to the 20-feet open space will consist of 10-feet from either

side of the common boundary. Those houses which have been built right up to the boundary will have their accommodation reduced by a room or two on each floor, while some of those behind which some open space has been reserved will escape untouched. In godown localities with narrow streets and deep houses, the 20-feet space may with advantage be converted into a public street to provide access for carts to godowns in the rear of the houses. This will greatly relieve congestion of traffic due to carts standing in front streets and will also in many cases bring the value of the curtailed house up to considerably more than that of the original house.

13. In such cases, if prime cost is of no account to us, we may do well to acquire the whole of each house and sell the remodelled house after our improvements are completed; but there are many objections to local authorities being large owners of house property, especially of *old* house property, to which many risks attach; so in my opinion it would be better to follow the policy of limiting expropriation to the minimum necessary and to acquire and demolish only the part of the house required for absorption in the central 20-feet passage, leaving the original owner in possession of the remainder. If, however, the law permits this, it should also provide that in assessing the compensation to be awarded for interference with the property the effect of the new passage in increasing the value of what remains of the house should be taken into consideration. It should then be possible to effect very far-reaching improvements at comparatively small cost in initial outlay.

14. In most Indian cities the resources of the local authorities are so exiguous that it is of the greatest importance to reduce the initial outlay on slum improvement as far as possible; so we shall in most cases find it the best policy first to complete all the arrangements detailed in the earlier part of this paper for checking the spread of congestion, preventing bad from getting worse, attracting or driving people away from the slums by improving main roads, laying

out new estates along them, building chawls for the poor just outside the congested area, closing rooms as U. H. H. and preventing overcrowding, and then to start the direct attack on slums by acquiring and demolishing houses in the least congested areas, with a view to providing sanitary estates just outside the central slums. By the time these new estates are developed and occupied, standards of wages and comfort will, if social reformers have not been idle in the interval, have risen considerably. Owners of bad houses in the central slums will, it may be hoped, have found it necessary to reduce their rents in order to reduce their vacancies, and the cost of acquiring these central slums will thus have been considerably reduced. At the same time the dishousing problem in them will have become less difficult, because there will, as the result of closure of U. H. H. rooms in the earliest stages of our campaign (*vide* par. 5), be fewer people to dishouse, and sanitary accommodation will be available for them much nearer their old haunts than if we had started our operations right in the centre. It will, therefore, be easier to deal with the higgledy-piggledy slums, and schemes for driving good straight roads through them to connect the new sanitary estates on either side with one another, though they will entail considerable initial outlay, will probably yield a profit in the end. Meanwhile these areas need not be left wholly untouched; there is no objection to dishousing a few families at a time: so every opportunity should be taken to improve conditions by removing obstructive houses here and there and converting their sites into open spaces.

Development of Rangoon.

WE invite the attention of our readers to a very important Resolution of the Burma Government on the development of the town of Rangoon, which is published in the *Burma Government Gazette* of the 27th October.

Industrial Rangoon is built on a site which was originally "a broad sketch of swamp and lagoon." Reclamations on:

a large scale are essential to any scheme for the provision of sites for residential and industrial purposes. As early as in 1866, the policy had been laid down that the proceeds of the sale of Government lands in the town should be formed into a fund to be utilised for public works—such as roads, bridges, sewers, &c. For the last many years, these operations have been entrusted to a Committee of the Municipality—the Committee for the Reclamation of Town lands. At first there was considerable optimism about the financial prospects of the venture, and it was expected that all the schemes could be worked out on a self-supporting basis. This forecast, however, proved entirely deceptive. As the sales progressed, the estate dwindled. After some time, therefore, the policy of sales was abandoned for obvious reasons, and lease were substituted. This meant a large diminution in the capital available for expenditure. Loans were then raised on the security of the annual rentals. By 1913, a stage had been reached at which the sinking fund nearly equalled the rentals realised. In the meantime, the demands on the Fund steadily increased. The area awaiting development is still large, and an ever-increasing programme of reclamation comprising private land is a matter of urgent necessity. The policy followed hitherto of “complete equipment,” under which each area reclaimed was fully developed and provided with roads, sewers, &c., at the cost of the Fund, threw an enormous burden on it. Owing mainly to the operation of these causes, a breakdown became inevitable, and in April 1914, the President proposed the closing down of the works in 1915-16.

The question of continuing the works on which the Committee was engaged, and the larger one of the measures necessary for the orderly development of the town, were referred by the Government to a Public Committee on which all interests were represented. This Committee has dealt with the matters placed before it with great ability and made recommendations many of which apply not only to Rangoon but to other large towns as well.

The first suggestion is that a system of district and residential zones should be adopted. The importance ascribed to this proposal by the Committee is due, in a large measure, to the peculiar local conditions of Rangoon. As the Government of Burma state in their Resolution, "whereas, normally, a City consists of a central industrial nucleus enveloped by a surrounding fringe of residential suburbs, Rangoon has developed on exactly opposite lines. It may be described as a central residential nucleus nearly surrounded by a fringe of commercial and industrial areas."

The other recommendations are of wider applicability. These are the extension of the municipal limits so-as to take in all areas suitable for development, the laying down of a scheme of "lines of communication by road, by 'bus and train routes, by rail and by river, needed to give complete facilities between the heart of Rangoon and its suburban areas, both present and future," and the enactment of Town Planning and Development Trust Acts for the city.

The need for town-planning legislation requires no special explanation. In any comprehensive scheme of operations, power must be taken to deal with private lands and to impose betterment contributions. We cannot help feeling, however, that the proposal to create a Development Trust independent of the Municipality needs greater justification than the papers before us show. The old Committee broke down because of its financial weakness, and there is no evidence that, with increased resources, statutory powers of regulation and expert guidance, a Committee of the Municipality cannot undertake the duties which are proposed to be entrusted to the Trust. The arrangement we propose will remove one of the great obstacles to improvement in the Bombay City, *viz.*, friction between the Corporation and the Improvement Trust. We hope that legislation, in its final shape, will not aim at creating a special body independent of the Municipal Corporation.

Subject to this dissent, we have nothing but commendation for the policy inaugurated by His Honour Sir Harcourt Butler and we once again express the hope that a similar active policy will be pursued in the city of Madras. The state of things here is not one on which we can feel any gratification. We have a Corporation which feels itself unequal to discharge its everyday burdens. The urgent problems bearing on the development of the City are hardly ever discussed or even thought of, and the piecemeal "improvements" effected from time to time hardly touch the fringe. The only remedy is that there must be a strong and insistent public opinion demanding that these questions should be taken up early and dealt with in a broad spirit under expert guidance and we trust that those interested in the City will organise themselves for the preliminary educative work that is so urgently needed.

Working and Maintenance of Surface Drainage Schemes in the Punjab.

THERE are as many as 30 municipal towns in the Punjab provided with systems of surface drains built on modern scientific lines. These consist of intramural drains discharging into one or more intercepting drains, which lead into the outfall channel terminating at the disposal works. The latter take the form of "land treatment." The sillage from the outfall channel empties into collecting tanks, which are invariably in duplicate, and from which it is raised by mechanical means, and then conveyed by carriers or channels on to a sewage farm. Such in brief outline are the main features of the surface drainage systems existing in the Punjab, and their maintenance is in the hands of Local Bodies. The Sanitary Engineer, as a result of inspection by himself and his staff during the year 1915-16, brought to the notice of Government the inefficient and unsatisfactory manner in which these systems of drains were being worked and attributed the conditions to the apathy and remissness

on the part of Local Bodies. Space forbids our going into the details of a very interesting report, but we shall allude only to the chief items where the maintenance is most defective. These are :

- (a) Efficient working of the disposal works,
- (b) Systematic and regular working of the flushing system.
- (c) Regular annual repairs of drains, pavements, flushing apparatus, disposal works, etc.

As regards the first item, the Sanitary Engineer reports that (1) the duplicate tanks which should be worked alternately, and the tank in use emptied once in 24 hours to maintain a free flow of sullage in the outfall channel had not been worked according to these directions and that (2) sullage was not properly utilised on the sewage farm to prevent its becoming a source of nuisance.

As regards (b), in towns where adequate means of flushing exist, the work of flushing was generally scamped, or did not take place. It is most important that the whole drainage system should be daily and efficiently flushed, as otherwise it is impossible to keep drains sweet and clean and prevent a certain amount of accumulation of evil smelling sludge which is a potent source of disease.

As regards the last item, the annual necessary repairs had invariably been neglected by Municipal Councils in charge of surface drainage schemes. It is impossible for any system of drains to go on from year's end to year's end in thorough working order without the necessity of repairs, and their omission deteriorates the system.

The chief reason assigned by the Sanitary Engineer for this state of affairs is due to a general lack of municipal appreciation and interest in hygienic and sanitary matters. In order to counteract the general apathy and with a view to place the working and maintenance of systems of surface drains on a satisfactory footing, he has offered the following suggestions :

(1) The existing staff of Darogahs should be replaced by qualified Sanitary Inspectors; the latter to be under the orders of the Health Officer or Municipal Engineer, and all appointments or dismissals to be vested in the Sanitary Commissioner, Punjab.

(2) Every Municipal Council should have a sanitation sub-committee to look into the efficient working of its system of surface drains and connected works.

(3) The giving of sanitary grants should be made conditional on and subject to favourable sanitary inspection reports from the Sanitary Engineer and the Sanitary Commissioner.

(4) Every Municipal Council having a drainage system should provide for and carry out annually all necessary repairs required to be done to drains, tanks, pipes and other connected works.

(5) To ensure employment of an efficient staff for the upkeep of sanitary works, it should be made obligatory for all Local Bodies to obtain the previous sanction of the Sanitary Engineer in the matter of the employment of such staff by them.

It is unnecessary for us to say that we agree generally with the remedial measures proposed by the Sanitary Engineer. The inefficient working of a drainage system only means great waste of public money and accentuation of unhealthy conditions; whereas sustained efforts and proper working show good results by the falling-off of disease and a diminishing death-rate.

We do not, however, agree with the Sanitary Engineer in his opinion that the average Municipal Councillor takes to more congenial matters which are likely to bring him credit than to the working of a drainage system whose efficient administration would only bring kudos to the executive officers. The lack of appreciation or apathy in

sanitary matters is not due to selfishness on the part of the councillors; we are rather inclined to attribute it to their ignorance of the technique of their upkeep. We would suggest to the Sanitary Engineer to arrange for a popular course of lectures on drainage, water supply and other sanitary matters and arouse the interest and attention of the Local Bodies to the importance of maintaining the sanitary works in an efficient and satisfactory condition. We can assure him that the result will not be disappointing.

Avenue Planting.

[BY RAI SAHIB K. KRISHNAN NAYAR, DISTRICT BOARD
ENGINEER, MALABAR.]

[The instructions contained in the following paper are the result of the author's long experience and deal with the technical side—the proper method of rearing avenue plants. Where these instructions have been fully carried out, very encouraging results have been obtained—results sufficient to show that the slow growth attributed to some plants is mainly due to want of proper attention and the ignoring of some of the elementary principles governing plant life.]

[The author's second paper will deal with the administrative side of the subject—the agency by which avenue planting can be best done, the responsibilities of Local Boards, &c.]

ONE distinguishing feature of avenue planting is its great length without breadth. This adds considerably to the cost of rearing the plants and no effort should be spared to hasten their growth after planting and no expenditure grudged which, by advancing the time when they are out of danger, tends to economy in the long run. Besides, a fast growth necessarily requires a uniformly healthy condition and trees so grown will always continue to have a pleasing shape and appearance. A slow or stunted growth at the beginning accounts for the shapeless forms of trees so frequently seen and every lover of trees can recall to his mind the frequent temptations he had to destroy such trees.

2. The chief points requiring attention to secure a fast and healthy growth will be briefly referred to as far as possible in the order of time. At the very outset, it may be stated

that too much importance cannot be attached to (1) the necessity of rearing seedlings in pots in a well managed nursery till they have a well established root system, (2) the proper preparation of pits dug in advance, allowed to weather and then filled in with good soil (as distinguished from sub-soil) and manure wherever necessary, (3) the securing of fences absolutely proof even against that "arch-enemy of all arboriculture, the ubiquitous goat," (4) the soil round all plants, about 2 feet wider than the shadow at noon, being kept always free from vegetation of any kind and raked from time to time so as to be always light and loose and (5) mulching that soil during the dry months of the year.

3. As soon as any planting is decided upon, a complete programme should be prepared showing the nature and cost of work to be done each year till the trees are out of danger as well as a calendar of all duties connected with it to ensure their being attended to in time.

4. Two years before the planting can be commenced in any place, a nursery should be started in the nearest possible place, where facilities for watering and supervision can be best secured. The seeds secured should be from well seasoned fruits and all seeds defective in any way should be thrown away. The beds should be thoroughly well drained and may be in rows raised 6 to 9 inches higher than the paths or drains separating them. The soil should be light and does not require any manure and the covering layer should be generally as thick as the seeds themselves. After the seedlings have sprouted and grown sufficiently, they should be transplanted into small pots in time to allow this being done without in any way injuring the tap root. The plants may have to remain quite two years in the nursery to secure a well-established root system. Plants removed after a year from the nursery and put into the ground will no doubt for a time grow much larger than those remaining in the nursery but these latter when planted a year later are soon found to overtake the former. During the two years the plants remain in

the nursery, they will have to be transferred periodically to larger pots—probably about 4 times. Light rich soil is required for the pots and it should be kept well drained. The pots should be full of soil—almost up to the brim. Potted plants require watering every day, in the rainy season too when there has been no rain. But the watering should never be profuse. If this is regularly and judiciously done, there will be no water collecting at the surface when any watering is done. As, at every stage, unhealthy plants will have to be rejected, a larger number of seedlings should be raised than will be actually required. How much more, depends entirely on the care with which the nursery is managed. With proper attention, about 20 per cent. more should suffice.

5. Almost simultaneously with the starting of the nursery should pits be dug, in the vicinity of the planting proposed, to prepare leaf mould required for the mulching of the soil round the plants in the dry season. These pits should be filled with dry leaves well pressed and trampled down and finally covered with a *thin coat* of soil. If this is not properly supervised, there is the danger of the pit being filled with more of soil than leaves. If any drain is required to intercept drainage, narrow deep trenches may be dug instead of pits. This will have the additional advantage of allowing the dry leaves to be filled in again as the leaf mould is removed. Any touch-me-not cleared on the road side may well be used for this purpose.

If manure is required, it is best to secure it at this stage and store it in pits so that it may get thoroughly rotten by the time it is used.

6. The pits to be prepared for planting may also now be dug so that they may get sufficiently weathered. The dimensions of the pits depend entirely on the soil. In hard soil they may be 5 to 6 feet in diameter. The first three feet of depth should be cylindrical; for the remaining two or three feet of depth, the hole may taper towards the centre. The soil about

a foot or a foot and a half in depth and generally distinguishable from the subsoil by its colour should be stored on one side and the subsoil kept separately to replace the soil round the pits that will be removed for filling them.

When earth is excavated for road repairs, the top soil which is not good for this purpose may be reserved for filling in avenue pits. Silt cleared from the side drain may also be used. Any filling done long before planting should be dug up. Here a warning is necessary against the practice of depositing side drain earth round trees and plants or adding manure so as to form a basement round them. Such heaps induce the trees to form surface roots above the natural ground level, which must necessarily suffer during the dry weather.

It may be quite possible to make the pits from which materials are removed for road repairs serve the purpose of planting also. Where earth has been already removed to some depth along the line of planting and where such removal is likely to continue, it is better to do the planting at the lower level.

7. Materials for fencing should now be thought of and where these are costly and can be made use of again but are too heavy to be conveyed to a different place except at great cost it is desirable to plant only one half or one third of the number of plants finally required. The morning sun being more injurious to men and animals, the eastern side of a road should first be given preference over the western. The sun being nine months in the year in the south, the southern side should have a similar preference.

A dry thorn fence, if it can be maintained in good condition without the materials being stolen, appears to be the best. One chief objection to it is the renewal it requires under ordinary conditions but if planting is done according to these instructions, it is found that the trees get out of danger before the fencing requires renewal. Open work of laterite is often too costly. When used, they should be at least 5 feet high and

where goats have to be feared, the gaps should not be more than 3 or 4 inches at the narrowest end. Barbed wire fence has been tried and found to be a failure first against goats and then against other cattle. Mud walls shut out air and light from the plants, are a kind of furnace in the hot weather and foster all kinds of noxious weeds and should, be avoided if possible. When used, it is not difficult to provide a large number of holes.

8. No hard and fast rules can be laid down for espacement. Where space permits it, the distance from tree to tree should be equal to the diameter of the crown of a fully developed tree and the distance from the margin of the used road should be half that diameter. For ordinary trees this diameter may be taken as 30 feet and so the trees should be planted 30 feet apart and 15 feet away from the margin of the used road.

9. The best time for planting appears to be when some light showers have heralded the approaching monsoon so that, when a month or more later, the monsoon actually breaks, the plants will have sent their roots into the new ground and established themselves there. Some time in advance, all the pits should be filled sufficiently higher than the adjacent ground to allow for the unavoidable settlement. This filling in should never be of wet soil and should be of top soil and manure only, the soil previously kept apart and the soil about a foot away from the edge of the pit being used for the purpose. The filling in should overlap this foot of undug ground and the overlapping portion, where the fence would naturally be constructed, should be trodden down firmly so as to prevent any drainage water percolating through it into the loose soil in the pit. In sloping ground, a drain may have to be cut on the upper side of the pit to prevent drainage into the pit. The filling in should further slope upwards 6 to 9 inches towards the centre. If the fencing takes sometime to construct, this is the time to complete it. If the filling is done some little time before the planting, it will settle sufficiently and the

surface has to be restored by a little more filling. If done just before planting, it is necessary to press down the filling a little so as to prevent an excessive settlement.

10. The planting is itself a simple process. Nevertheless some of the most fatal mistakes are made then. Quite a common mistake is to plant them too deep from a fancied analogy with the foundation of a building which of course cannot or should not grow downward. Trees like the cocoanut or the plantain may stand some such partial burial but generally there is no need to place the plants deeper than they were in the nursery and to ensure this, the nursery mark on the plant should be left visible. Another practice common throughout this country and unfortunately sanctioned in some of the standard works on road making is to put a number of seedlings, often of different varieties into the same pit, presumably under the impression that one or the other may survive. This practice cannot be too strongly condemned. If so planted, the young trees will compete for nourishment, moisture and light, and will often all die in the struggle or survive as stunted and useless shrubs. In the few cases in which more than one tree survives in healthy condition, it is found hopeless in after years to remove one of them without destroying the balance and shape of the other. If plants are well looked after, there is no need to take any chances and the very few that may die or prove unhealthy can be replaced.

11. Props will be found necessary for almost all plants, particularly as these are not intended to be half buried. Besides they enable the trees to have a clean straight vertical stem. The props should be quite rigid themselves and for this purpose, they require struts fixing them at a height of four to five feet above the ground. Great care is required in tying the plants to the prop. Flat dry plantain fibre can best be used for the purpose and a thick piece of the same can be placed round the plant as a sort of packing. The tying should be periodically redone. No mark of the tying should on any account be allowed to appear on the bark of the tree.

12. Many of the officers having charge of avenue planting are possessed by the one idea that ordering and paying for watering on a large scale will cover a multitude of sins. They do not even see that the watering paid for is done and the men employed are so doubtful about getting payment for all the watering ordered, on account of the inadequate results which they themselves fear, that they always take care to be on the safe side. The result is that some watering is done at inspection time which makes the surface cake and harden, induces the roots to come to the surface to be parched up afterwards and does on the whole more harm than good.

During the period elapsing between planting and the breaking of the monsoon, regular watering will be required. In the next season, a little watering, certainly not on the same scale every month, may be required, say, on the west coast about once in three days in April, May and June, once in five days in January, February and March and once a week in previous months if there has been no rain at all. Even this is capable of being further reduced. It is best to arrange for this under proper supervision. When watering is done, the ground should be periodically raked to prevent its hardening. If the plants grow properly, no watering should be necessary in subsequent seasons. Nevertheless if the plants are found to suffer from the draught, an occasional profuse watering may be specially arranged for under proper supervision. The mere fact of a plant not growing should not be taken as due to any draught. Plants also require and take rest.

Water is really required a little below the surface. On the surface itself, it is merely wasted and does more harm than good and it is well worth trying to secure moisture below, without wetting the surface. If the soil is loose, water poured into broken necks of pots placed round the tree will secure this object.

All the water poured should collect uniformly round the tree but not near the stem and no portion should flow away

nor should the watering form any pit. No watering should be permitted between 9 a.m. and 3 p.m.

13. Far more important than watering is the prevention of the soil around the plant from hardening. It should be kept raked from time to time and should be loose and light. No grass, weed or any kind of vegetation should be allowed. These rob the plants of moisture not only for themselves but also form a medium for passing the moisture in the soil into the atmosphere. Even after the plants have developed into young trees and are out of danger, a digging should be given round them both at the beginning and the end of the monsoon. In the first digging it may be sufficient if the clod is broken and overturned; in the second, it should be pulverised. With the first digging any manure thought necessary should be added. As manure will hasten the growth of the plants, it is worth while to incur expenditure on this account. It may be added in varying proportions to different plants to see how far this expenditure is justified. Tank silt and other such rich deposits charred (not burnt) with alternate layers of a litter of dry leaves and twigs and covered with the same soil, in such a manner as not to allow the smoke to escape have almost a startling effect on plants.

14. As soon as the dry season commences, the soil round the stem 2 feet wider than the shadow at noon should be covered to a depth of 2 inches with leaf mould or decayed vegetable matter already referred to in para. 5. Any watering done should be over this mulched soil. The moisture is then retained much longer and the soil will then neither cake nor crack and the tender roots will not be injured.

15. If the instructions in paras 12 and 13 are fully carried out, there will be no necessity for fire-tracing to protect the plants or trees from being injured by the dry grass in the vicinity taking fire. It will really pay to employ a person who takes interest in the planting to watch their growth from time to time, remove the caterpillars or other insects that injure them and generally to see that all causes that

hinder the growth in any way are promptly removed. A system of rewards depending on the healthy growth of plants will have a salutary effect and such discrimination between good and bad work will prove a powerful incentive for good work.

16. The places where rearing of avenue plants is easiest will doubtless receive the first attention. It should, however, not be forgotten that places where they are difficult to rear are often where avenue trees are most required. In a rock plateau devoid of all vegetation, sufficiently large pits may be dug and filled with good soil. This may give a sufficient start to the plants and if a proper selection of some hardy variety be made, the trees may be able to send their roots into the rock. Where the rock gets hardened, by weathering, the filling in should be done as soon as the pits are opened. A little in this direction should be done every year and the road specification may provide for this being done at least in one place in every such furlong. In some cases, the excavated soil may be useful for road repairs. Where loose soil is difficult to obtain, all the side drain silt should be stored till it is sufficient to fill in one pit.

The Punjab Compulsory Education Bill.

[By P. A. SUBRAMANIA IYER, HEADMASTER, HINDU
HIGH SCHOOL, TRIPPLICANE.]

The Government consider we have come to a time when a larger share of Educational expense should be borne by the State, and a smaller proportion borne out of the rates — Mr. H. A. L. Fisher in his address at Liverpool on October 2nd.

THE Government of the Punjab deserve the thanks of the whole of India for having published their draft Compulsory Education Bill for public criticism. We welcome this as a useful departure from the traditional ways of Local Governments in this country. Bills conceived in the dark, hatched in the dark and sprung upon a surprised public in their full-fledged shape when it is too late to modify their principles, if necessary, are almost a regular feature of our

administrations, and no amount of complaint or remonstrance from the non-official public has hitherto availed aught with them. The District Municipalities Bill now under consideration by the Madras Government is an instance in point. Instead of letting us know what their own views were, the Government asked public bodies to make their suggestions. As another instance, we may perhaps refer to the secret conference recently held under the auspices of Lord Pentland for considering the development of Education in this Presidency. A better plan would, of course, have been for the Government to publish their draft Bill first and invite criticisms thereon. This would insure such criticisms being clear and to the point and directed to such of those parts of the Government's draft that may require thorough modification. Much time wasted in a general and useless discussion would be saved. We are glad that the Punjab Government have realized this, and they may well congratulate themselves on their having set an example for other Governments to follow.

As to the Bill itself, there are one or two features which are an advance on the Bombay Bill and the Bill proposed to be introduced into the local Legislative Council. In these, provision is made for introducing compulsion only into municipal areas, while the Punjab Draft Bill extends its

* We understand an informal Conference of certain officials and non-officials appointed by the Government of Madras was held at Fort St. George on Saturday the 10th November, to consider the question of making better provision for education in the Presidency. His Excellency Lord Pentland opened the Conference. The discussion is stated to have been informal. No division took place and consideration was, it is understood, confined to a few important principles embodied in a Bill prepared by the Government of Madras, copies of which had been circulated to the members of the Conference beforehand. We have not had the privilege of seeing the Bill but we learn that the main purpose of the Bill is to set up Educational Committees for municipalities and for taluk boards or parts of any taluk board. So soon as a committee comes into existence all the power and functions exercisable by the municipal council, the district board and the taluk board in respect of elementary and secondary education will cease and determine. An education fund will be instituted into which will be paid the proceeds of cess, the fees, and such sums as the Government may grant towards the purposes of the law. Provision will, it is understood, be made for the introduction, by a resolution passed by the committee, of compulsory elementary education for boys. The local body concerned will levy an education cess at such rate as may be determined upon by itself, and the Government will pay as much as is obtained by this cess.—Ed.

scope to rural areas as well; whereas the Madras and Bombay Bills do not contemplate the extension of compulsion to girls, the Punjab Bill does. But all the Bills alike are defective in one important and vital particular. In none of them is any attempt made to secure adequate financial guarantees to local bodies declaring education free and compulsory within their jurisdiction. The Punjab Bill states that "Compulsory Primary Education shall not be introduced into any area unless the Punjab Government is satisfied that the financial position of the local authority and the educational condition of the area in which it is proposed to enforce compulsion are such that it can be effectively introduced." In no civilized country in the world is primary education a charge merely upon local revenues. Everywhere public education is regarded as having an Imperial and local significance; everywhere the State contributes largely to public education; local bodies are called upon only to contribute a share and to local authorities have been delegated the duties of enforcing and administering the Education Acts.

It has been a long-standing complaint that our local bodies are lacking in financial resources, and even though they may be willing to tax themselves extra for this beneficent reform, there is absolutely no doubt that they will *not* be able to find all the funds needed. It is the duty, therefore, of all those interested in the matter to see to it that the Bill is not allowed to be passed unless and until a provision is inserted in it that the Local or the Imperial Government will undertake to bear two-thirds or three-fourths of the cost involved. Otherwise, the Act, when passed, will prove another of those things which, in Lord Lytton's classic phrase, are 'promised to the ear but broken to the heart.'

They say that small reforms are an enemy of large reforms and it is not unlikely that the proposed Education Bills eventually turn out to be 'small reforms'. Post-war reform is the talk of the hour everywhere in this country and it is conceded on all hands—Indians and Anglo-Indians

alike—that a large and liberal instalment of reform is sure to come soon. There are also those who say that in certain departments of administration such as education (this is said to be the chief feature of the reforms advocated by the *Round Table* group of politicians), complete “Home-Rule” may be hoped to be conferred on us. May it not be wise then to postpone measures like the Punjab Compulsory Education Bill till after the war and get a more satisfactory Bill applicable to the whole of India piloted through the Imperial Legislative Council?

Tenure of Service Under Local Bodies.

WE report in this number* an important judgment of the Madras High Court on the tenure of office of municipal employés and invite the attention of all local boards and municipalities to the same.

All offices are held either ‘at pleasure’ or ‘during good behaviour.’ Where an office is held at pleasure, the holder thereof is subject to dismissal at any time without any cause being assigned. No notice or framing of any charge is necessary; and the holder is removable at the sole discretion of the appointing authority. Where, however, an office is held during good behaviour, the holder thereof is appointed to all intents and purposes for life and has what is called a freehold office, for his life. He can be removed from office only for *want* of good behaviour. In this case, notice of dismissal should be given and a charge framed and proved.

It is well-known that except where it is otherwise provided by statute, all public officers and servants of the Crown hold their appointments at the pleasure of the Crown; and speaking generally they are subject to dismissal at any time without cause assigned and an action for wrongful dismissal will not be entertained by a Court of Law.

* Page 105, Law Reports Section.

All officers and servants of local bodies do hold public offices and are expressly stated to be public servants by the several Acts creating the said local bodies. The Acts contain express provisions regarding their appointment and dismissal. Except where a particular appointment is stated to be held during good behaviour, all officers and servants of local bodies would, according to the true intent and meaning and the legal construction of the enactments, hold their respective offices only *at pleasure*. They are accordingly removable from their office without any notice being given and without any cause being assigned. They would be exactly in the same position as the officers and servants of the Crown. This salutary provision is intended for the public benefit. It may be impossible to prove misconduct to the satisfaction of the superior authority or a Court of Law.

Most, if not all, of the local bodies have made Rules and Regulations relating to the grant of pensions, gratuities, etc. These Rules and Regulations generally do *not* constitute a contract between the parties. Otherwise, the Rules and Regulations cannot be altered from time to time except with the consent of the officers and servants affected thereby. The local bodies would therefore have power to frame Rules and Regulations and to modify or alter them from time to time; and they would apply only in so far as the officers and servants remain or continue to remain in the service of the local bodies. The rules may provide for notices being given and for charges being framed before any action is taken against the officer or servant concerned for any breach of his duty. These Regulations may be legally *ultra vires* and void as being contrary to public policy. If the rules are not complied with, the remedy of the party concerned is not by a law suit but by way of appeal departmentally to higher authorities. He cannot have a right of action in a Court of Law for wrongful dismissal against the local body concerned.

This view of the law may at first sight seem very hard to the employés of local bodies. A clerk employed under a

private merchant, for instance, is entitled, under the general law, to a month's notice or a month's pay being given to him prior to his being discharged; while an employé under a local body is in a very precarious position, he being liable to be dismissed at any time and without any notice. But this is as it should be, in the interests of the public. Otherwise, these employés can never be kept under proper control. It is for the purpose of avoiding the scandal which may arise from investigating every question in a court of law that the legislature has left this power to the discretion of the appointing authority. If any of the servants, however, should be dismissed capriciously, the local bodies might hear of it possibly from the electors and the public; but the legislature trusts that the local bodies will not act capriciously.

Infant Welfare.

The Training of Midwives and Employment of Lady Health Visitors.

THE Madras Government have recently passed an important order in connection with infant welfare.

With a view to reduce the large amount of mortality owing to the absence of adequate provision for attendance on women at or about the time of delivery, the Madras Government sanctioned a scheme,* last year for training 100 midwifery pupils in the hospitals in the Madras City and requested the Surgeon-General to consider whether similar arrangements could not be made for training midwives in mufassal hospitals. The Surgeon-General was of opinion that to begin with, 35 midwifery pupils could be conveniently trained in certain institutions where facilities existed and that the number could in course of time be increased to 50. The Government have already sanctioned the proposal of the Tinnevely District Board for the training of midwives at the

* G. O. No. 1133 Public, dated 13th June 1916.

Municipal Hospital at Tuticorin. The Surgeon-General has now been requested to place himself in communication with the authorities in charge of five other institutions and suggest to them the desirability of making early arrangements for such training, reporting to Government in due course the actual measures adopted.

The Surgeon-General has also been requested to consider the possibility of providing for similar training in the Women and Children's Hospitals at Bellary, Calicut, Salem and Cocanada.

With regard to the employment of lady health visitors to deal with infantile mortality, the Corporation of Madras has sanctioned a scheme of health visitors under the supervision of a lady doctor with University qualifications. Arrangements are being made to carry out the scheme and the experiment will be watched with interest and its results awaited before it is extended to the mufassal. Owing, however, to the paucity of qualified lady doctors, no great extension of the system seems possible at present.

Another question which was referred to the Surgeon-General for consideration in this connection related to the possibility of enlisting the co-operation of voluntary organizations in pre-maternity work. The Surgeon-General has consulted the Committee of the Dufferin Fund on the subject. The Committee state that with the assistance of the workers of the Social Service League, a good deal of pre-maternity work has already been done at the Government Maternity Hospital where a special branch has been opened for dealing with such cases, and that work on similar lines has also been commenced in connection with the Kalyani Hospital, San Thomè, and the Rainy Hospital, Royapuram. They suggest that cards should be printed and distributed to the various social workers in the Madras City which may be recognized as an introduction to the pre-maternity department of these hospitals and recommend that this arrangement may also be introduced

in the Royapettah and the Royapuram hospitals. Pre-maternity advice and treatment can, however, be properly carried out only at women's hospitals and the special women's department of general hospitals. The Surgeon-General therefore considers that the system should be introduced in the Victoria Caste and Gosha Hospital instead of at the Royapettah and Royapuram Hospitals.

The Local Government Board and Child Welfare.

CONNECTED with the proposal for the establishment of a Ministry of Health, Mr. Stephen Walsh (Parliamentary Secretary of the Local Government Board) states that it is the intention of the Board immediately upon the re-opening of Parliament to introduce a useful Bill for the establishment of maternity centres and infant clinics throughout the country. The Bill will make provision for the cheap and regular supply of milk for the feeding of infants and young children, and for the provision also of nursing homes, and will co-ordinate the various existing agencies working for child welfare under the control of local bodies. It is hoped to do much through existing agencies, and by co-ordinating and supplementing their work in improving the conditions of child life, to reduce infantile mortality, and raise the physical standard of children.

Training of Local Dais (Mysore.)

AT a meeting of the Central Committee for the Improvement of Malnad, the following note by the Secretary of the Committee on the training of local *dais* was considered, and the Committee resolved that "the training of local *dais* in the elements of midwifery in the Female Dispensaries in the district headquarters is very desirable and

that a beginning be made in the Shimoga District by training five candidates for a period of six months at a time where there is a qualified Indian Lady Medical graduate and where there are sufficient facilities for such training."

A scheme for the training of local dais in the elements of midwifery.

With a view to give some rudimentary training to the women who are at present attending to labour cases in the Malnad, it is proposed to organize a course of elementary lectures in Kannada in the District Headquarter Town of Shimoga.

2. The expenditure will for the present be confined to women drawn from the Shimoga Taluk including the town of Shimoga and any students who may be willing to attend the course of lectures from the other taluks in the district will also be admitted.

3. There is already a Female Dispensary in Shimoga under the charge of a qualified Indian Lady Doctor. There is also a lying-in-ward for urgent labour cases and a maternity has also been recently sanctioned by Government for this town. Conditions are thus favourable for making a beginning straightway in the training of local *dais*.

4. It may be urged that at present there are not ample facilities for the systematic and satisfactory training of midwives and that half training is worse than no training. But this objection loses all its force when it is taken into consideration, that even the very elements of cleanliness and non-interference are unknown to the kind of women who are now summoned to attend upon labour cases and that many a mother's and child's life can be saved by at least cautioning the women against the evil effects of dirty handling of maternity cases and unnecessary frequent interference.

5. It is therefore urged that a short course of at least a dozen lectures spreading over a period of three months at the rate of a lecture a week be delivered by the Lady Doctor to the local *dais* of Shimoga town and the adjoining villages, that a scholarship of Rs. 10 a month be held out as an inducement for those *dais* to attend such lectures, that a maximum number of students for a course be fixed at 12 and that the Lady Doctor be given an honorarium of Rs. 50 a month for the extra duty devolved upon her owing to this work.

6. The whole scheme will thus cost :—

Scholarships for 12 <i>dais</i> at Rs. 10 a month for	Rs.
3 months 	360
Allowance to the Lady Doctor at Rs. 50 a	
month for 3 months 	150
Miscellaneous, including sundry charges	
such as books, etc., (L. S.)	90
Total ...	600

Personal Hygiene.

[By DR. M. R. SAMEY, M.D., D.P.H. (U.S.A.), M.R.S.I. (LONDON),
HEALTH OFFICER, NARAYANGANJ.]

The Care of the Skin.

JUST as the wall is the defence of a fortified town, and when it is passed the town is taken, so is the skin the vital fortification of the body, to which it is such a powerful defence that, when it is gone to any great extent, the life goes too. Hence it is that burns and scalds are more serious in proportion to their extent of surface than to their depth ; it being less serious to lose a certain amount of flesh and even of bone than a large amount of skin. In injuries, too, especially about the hand and fingers, when they are maimed or crushed, the great point that decides whether it is better to remove or to leave the injured parts, is the amount of skin by which they remain attached, for on this their life depends. Skin, when removed once, is uncertain in its growth. As a rule, it rapidly covers again the bare and unprotected surface ; at other times, it is almost impossible to make it to do so, and as a last resource, modern surgery now plants in the breach little dots of healthy skin, cut from other parts or from an obliging friend, and the growth eventually repairs the protecting wall.

It is the beginning and end of all physical beauty, which literally is but skin deep. Whatever strength may be in

muscle, there is no beauty in its bare appearance ; only when clothed with skin does it tempt the sculptor's chisel. Whatever loveliness exists in the damask cheek, the ivory forehead, the well-rounded arm, the graceful figure, all these indisputably vanish with the skin. Nothing makes this truth more painfully evident than the contemplation of a skinned rabbit.

Again, the skin is an organ of expiration and, indeed, of respiration. It expires a certain amount of carbonic acid gas, like the lungs ; and it also absorbs a certain amount of oxygen, where it is very thin, as in the cheeks, for it is this gas which makes the blood there such a bright red.

Again, it is an organ of transpiration. No less than one pint of water passes out daily by the skin, while only half a pint is expired by the lungs. Water is always evaporating from the skin. It is only when it is produced in excess under exertion that it is seen, and we call it perspiration.

Then again the skin is a secreting organ. It produces a peculiar oil which is also a protective, as well as a natural preservative, for the hair. Besides other minor uses, it is sufficient to say that it also serves the important functions of the organ of touch, and of the regulation of heat.

All feeling of touch is in the skin, but in very different degrees in the various parts of the body. For instance, if the skin is touched in the back with the two points of a compass $2\frac{1}{4}$ inches apart at the same time only one touch is felt ; whereas in the tongue or fingers, however little the points are separated, two touches are felt. If a small portion of the skin be scraped off, and the raw surface be touched, a feeling of pain is felt, but the sense of touch is lost.

The tips of the fingers and the tongue have the finest sense of touch, which, however, may be lost if the object touching them be very cold or very hot. These delicate follicles of touch are the sentries of the body that give immediate warning of the character of the substance with which the body is brought into contact. Animals are endowed with a far

more subtle sense of touch than human beings are, and especially those which wander about at night. Cats, tigers, and others of the feline race, are very sensitive in the stiff hairs protruding from the face (or whiskers), by which they discern the character of any near object before it actually touches the skin or fur at all.

The skin is also the best regulator of the body, the compensating balance of the human chronometer, or the governor balls of the human steam engine. When this power is lost, the person dies. In one or two cases where people have been varnished all over, it is probable that death was due to this cause, rather than to any poisons retained in the body.

If the external air be cold, the skin contracts and tightly closes all the little blood vessels, thus preserving the heat of the precious fluid by keeping it from the surface; while on the other hand, if the weather be hot it allows the blood vessels to expand, and, by bringing the blood to the surface, controls the heat of the body by evaporation.

Looking a little closely at the construction of this wonderful covering we find in the first place that there are really two skins, an outer one and an inner, in which are all the nerves, blood vessels, and the organ of touch, the upper skin simply serving as a protective covering to the delicate true skin beneath. Now, in order to have some faint idea of the marvels which our bodies really exhibit, let us just consider the structure of this outer covering only. Being only the outer case, one would think that it would not contain anything very interesting or wonderful. Let us see. In the first place it is alive; that is, all but the very outside of it.

Then it is composed of from a dozen to twenty or more layers of living cells, packed side by side and layer on layer, just like the bricks in a wall. Each of these cells not only is born, grows, matures, ages, and dies out, eats, drinks, breathes, but frequently moves, and certainly works, not only in doing its share in supporting the general structure, but in some special calling.

The life history of one of these cells is interesting. Born by the process of the parent cell squeezing off a part of its own body, and commencing an independent life, the young cell forms one of a row of similar cells in the deepest layer of this outer skin and next the true one. Here the young cells are placed on the banks of a small blood vessel, which supplies them regularly with fresh air and their share of whatever food (solid or liquid) the person takes. If, for instance, the individual be of intemperate habits, alcohol is freely handed round to these cells (to their great hurt) with other things. The cells here are very busy carrying on a most important chemical industry, for to them is intrusted the manufacture, from certain materials they take out of the blood stream, of the color of the skin. Of course, if the person be fair, and the skin nearly colorless, they are not hard worked, though when there is much heat, or the sun is shining on the skin, they get very active, and produce the clear brown known as 'tan' color; at other times for some reason or other, they arrange the extra color in little circles called freckles. But where the skin is dark brown, or copper, or yellow, or black, their work is, of course, immensely increased. After a time they become parents by squeezing off part of their bodies in their turn, and these now occupy the border of the blood vessel, their parents having to mount a row higher and nearer the surface.

We have spoken of their bodies. It must be understood that each of these cells is composed of an irregularly shaped, jelly-like mass, and is far smaller than the smallest speck that can be seen with the naked eye. The parents have now to depend for all their nourishment on their offspring next the blood-stream, who pass on what they can spare. Soon the parents become grand parents, then great-grandparents, and being further from the source of food, now get less and less of it, and as a natural consequence get smaller and smaller. Just before they die of starvation, however, they set to work with a noble purpose and manufacture a peculiar bony substance partly it is suspected out of their own bodies,

that gives firmness to the substance of the skin, to the outside of the hair and forms the substances of the nails. Then they die, shrivel up, and, reaching the surface, lie in countless thousands in fine dust which can be shaken out in clouds at night from the innermost garment, and scraped or brushed off the skin. This forms the bloom on an infant's cheek; and next time you see this fine body dust, reflect that it consists of the unburied corpses of your faithful servants who have died of starvation.

The hair and the nails too are very beautifully made. Each hair grows like a hyacinth or a tulip, from a bulb deeply planted in the true skin, from which it continually keeps growing and at the same time dying away at the end. The surface of the hair is, as it were, thatched with cells overlaying each other like tiles, while the centre is not hollow, but filled with a sort of pith. Straight hairs are round while wavy and curly hair is oval. Hairs do not grow straight out of the skin, but at an angle, so that they can be made to lie down flat. In the head they generally all radiate from one centre, and number about 100,000. It is calculated that four sound hairs will support a pound weight. The whole body is covered with hair varying, however, greatly in length and quality. The hair of animals serves, of course, all the purposes of clothing. In man, it is principally an ornament.

The nails are beautifully modified natural outgrowths of the horny substance of the skin, and are of great use in giving firmness to the finger tips and grasping small objects.

The pores are another structure connected with the skin, and one concerning which the vaguest ideas are current. Some imagine them to be little holes in which the hairs are inserted; others, again, believe they are perforations through the skin and opening into the body, through which the perspiration comes, the skin being thus a sort of sieve. But these ideas are erroneous indeed, the pore, as popularly understood, does not exist in reality. There are no holes in

any part of the skin leading inside the body at all. Even the mouth and other passages only open into the lining skin or mucous membrane. The real "pore" is a tiny orifice guarded by lips, which is the mouth and only opening of a small sweat gland which has no communication internally at all, but is just coiled up at the other end like a watch spring. The pores never open by hairs, but always between them. They are really like little lungs, and breathe in oxygen, and keep the skin red, and breathe out a little carbonic acid gas, and altogether about a pint of water a day. They are very numerous and exist all over the body, though they are most numerous where most perspiration occurs, especially on the palms of the hands and soles of the feet. It is of the utmost importance for health that the mouths of these glands or pores should be kept open and free from all obstruction.

Perspiration is the natural grease that lubricates the skin. This comes from the curious little glands that specially manufacture it, two of which are found beside each hair, opening on either side of it somewhat below the surface of the skin.

The net work of blood vessels beneath the skin is so close and so incredibly fine, that it is almost impossible to pierce the skin anywhere with the point of the finest needle without wounding one of these tiny vessels and causing bleeding.

With regard to absorption, it is doubtful if any watery solutions penetrate the outer skin. Any greasy substances, however, well rubbed in, reach the tubes of the oil and sweat glands, and are carried into the neighbouring blood vessels, and thence over the body. The process is, however, very slow where the skin is thick and hard, and most rapid where it is very fine and soft, as under the arm-pits.

"The use of the skin," said an examinee the other day, "is to be kept spotlessly clean." This is, indeed, a good brief for all our knowledge of dermatology. There are at least

three impurities that need constant removal. First of all, there is the dried up scarf skin constantly being produced on the surface of the body; secondly there is the continual secretion of oil and water all over the surface to be got rid of; and lastly all the dirt that falls to our share in this dirty world.

A lady of fashion, in enumerating the means for preserving beauty, says: "Cleanliness, my last recipe (and which is applicable to all ages), is of most powerful efficacy. It maintains the limbs in their pliancy, the skin in its softness, the complexion in its lustre, the eyes in their brightness, the teeth in their purity, and the constitution in its fairest vigor. To promote cleanliness, I can recommend nothing preferable to bathing. The frequent use of tepid baths is not more grateful to the sense than it is salutary to the health and to beauty". A daily bath, at the proper temperature, is the most agreeable and efficient of all cosmetics.

The skin requires, however, often something more than merely keeping clean. If the skin is at all delicate the face is apt to get hard and dry, wrinkled, spoked or otherwise disfigured, and often from causes entirely preventable. The best lotion or wash for a tender skin, and especially for the face, is pure rain-water, or failing this, pure soft water, or failing this, boiled water, distilled water, or artificial soft water. For women no soap should be used for the face but pure curd soap, and for delicate skins prepared oatmeal, and once a week very hot water and a little curd soap. The worst thing for the face is hard water, and tar, carbolic, or strong yellow soap. In case of pimples sponging the face with lemon juice and glycerine, or even a little vinegar and water is much more efficacious. A teaspoonful of sal volatile in a quart of water is also a very good lotion for the face in such cases.

In fine, cleanliness is the keynote to a healthy preservation of the skin and its importance can never be overestimated.

Phthisis in Bombay*.

ON comparing the figures of previous quarters for the past five years with those of the 1st of 1917, the mortality from all causes is considerably lower during the first quarter of 1917, but the number of deaths assigned to diseases of the respiratory organs is proportionately higher.

The reasons for this may be :—

1. The improvement in the registration of the causes of death;
2. More detailed inquiries are made by the staff.

On the other hand, many hundreds of persons especially children die without any skilled medical aid and the cause of death without a medical certificate has to be inquired into by the Registration staff and a correct diagnosis cannot always be arrived at as the information given by the relatives cannot always be relied on.

With regard to the increase from Phthisis, there is no real increase; the mortality in the quarter was 70 below the mean of the previous quarters. The apparent increase is due to the better registration and diagnosis. There can be no doubt, however, that diseases of the respiratory organs are responsible for a large number of deaths especially among young children and very old people, and while the number of deaths of infants was less, the number of old people dying during the quarter under report was 293 higher than in the corresponding quarter of 1916. It must be remembered that the population of the city has very much increased and there are many more hospitals full of sick and wounded; also labour camps and labour hospitals; under the climatic conditions and defective sanitary surroundings of the poorer classes in Bombay, which tend to render them susceptible to exposure, respiratory diseases must always play a large part in the death roll of the poor.

* Memorandum prepared by the Executive Health Officer, Bombay Corporation.

The measures that can be suggested are the provision of better housing accommodation and better food for the poorer classes, thus reducing the risks of exposure and increasing their power of resistance. The former is in the hands of Government, the Municipality and Improvement Trust and other large authorities and employers of labour; the latter depends to some extent on economic conditions, demand for labour and commercial prosperity generally, but there is no doubt that there is a large number of the working classes who spend their wages in ways which are not conducive to increasing their powers of resistance to disease or of bringing into the world healthy children or of giving those children a fair chance of surviving.

The philanthropic institutions in the city are however working in this direction; the Municipal Dispensaries and the Visiting Nurses, the Lady Willingdon Scheme and Health Visitors, The Bombay Sanitary Association and the Anti-Tuberculosis League, and the recent Anti-Venereal League are all doing valuable work in educating the people in Hygiene, while the Maternity Homes and the supply of pure milk to the mothers who are unable to suckle their children are making a sure headway and are proving more successful than many anticipated, amongst a class of people surrounded by prejudice and superstition, and sceptical of any departure from their primitive methods.

These points have been brought to the notice of the Corporation on many occasions and many of the suggestions have been approved and carried out; the housing of the poor and the improvement of insanitary houses, however, makes very little progress and the voluntary efforts to improve the health of the poor will make very little headway while those conditions remain.

The provision of Municipal Dispensaries has given greater facilities to the poorer classes for obtaining medical relief but as I have often pointed out while bodies are allowed

to be disposed of without the cause of death being certified by a qualified medical man, it will be hopeless to expect accurate registration of the cause of death. -

Kala-Azar in Assam.

THE following note by Sir Leonard Rogers on the outbreak of *Kala-Azar* in Sibsagar has been published by Government for general information:—

The extensive outbreak of *kala-azar* reported in the Sibsagar sub-division is a very serious matter, as it threatens to involve the flourishing Sibsagar district in the terrible fate of Nowgong. Fortunately, during the last twenty years the success of segregation measures on the Nowgong tea estates and in a few villages in Golaghat has established their value in dealing with the disease, while recently a curative treatment has been discovered. These two measures place in our hands the power to deal with the present outbreak which was not at hand when Nowgong was ravaged by the disease to such an extent that the population actually decreased between 1891 and 1901 by 31·5 per cent., with a corresponding loss of land revenue. Apart from the humanitarian aspect of the case, it is clearly worth while for Government to spend considerable sums in order to prevent a similar loss of revenue in the Sibsagar district.

The measures required for controlling the disease fall under the following three distinct heads, which must be separately considered:—

I. *Measures to check the further spread of the disease.*—This is of primary importance, as, if the infection of many new villages can be prevented, it may be possible to do much to control the outbreak in those already involved, but once it becomes as widespread as it did in Nowgong and the southern parts of the Kamrup and Goalpara districts, it will be too late to save the district from devastation. For this purpose the essential thing is to take steps to prevent infected persons leaving their villages to go to reside in uninfected or slightly infected places by the following means:—

(a) Register all the members of infected families and inspect them regularly to prevent them moving to uninfected villages.

(b) Distribute widely throughout the district in the uninfected villages a vernacular pamphlet pointing out clearly the danger of the disease being introduced into villages through persons coming from infected places, even if not apparently ill on their arrival, and directing any such arrivals to be reported at once. The great dangers of the disease should be described and its former ravages in Nowgong.

II. *Measures to deal with infected households.*—These should be on the lines already carried out with a considerable degree of success in the Golaghat subdivision :—

(a) Segregate the whole of infected households on neighbouring but isolated spots.

(b) Burn all old infected houses and prohibit rebuilding on their sites for at least ten years. (Dr. Dodds Price may be consulted as to whether rebuilding should ever be allowed.)

(c) Prevent any fresh healthy families being allowed to go to live in an infected village. This is most important, as the continued importation of new coolies into an infected tea-garden cooly line has been shown to keep up the disease indefinitely.

(d) When a few houses are infected in a village of some size, only the infected families should first be moved, but if the disease continues to spread seriously in the village, the healthy families should also be moved to a separate site from that to which the infected persons have gone, and reoccupation of the old infected site should be strictly prohibited. No person from an infected house, even if apparently healthy, should be allowed to go to the new site for healthy families, because he may be in the incubation period of the disease, which probably is often long.

III. *Measures for treating cases with a view to curing them and rendering them uninfected.*—The recently discovered curative treatment of the disease places in our hands a most powerful weapon in dealing with the fresh outbreak, as by efficiently treating the infected patients their power of spreading the disease may be rapidly cut short, instead of their remaining sources of fresh infections for from many months to several years. Unfortunately the new treatment necessitates great care and some experience in the administration of intravenous injections, so can only be successfully under-

taken by a specially trained medical staff. Further, for the first two months or so of the treatment it is advisable that the patients should be kept in hospital, although when rapidly improving they might attend as out-patients for the injections, if beds were required. The following measures will, therefore, be necessary:—

Build an indoor dispensary in the centre of an infected area and place it under an Assistant Surgeon preferably who has been specially trained. If many cases have to be treated, he might have trained Sub-Assistant Surgeons under him. I have ten beds for *kala-azar* patients under me in the Medical College Hospital at Calcutta where I should be glad to train any men who may be deputed for this work, if the permission of the Bengal Government is obtained. There will no doubt be the usual difficulties in getting patients to go to hospital at first, although there will always be some who have lost their near relatives who will go and when the good results of the treatment are seen by the people, I anticipate the only difficulty will be to accommodate the applicants. By this time the medical staff will have had sufficient experience to enable them to give the injections safe to out-patients in unadvanced stages of the disease.

Reinforced Concrete Wheel Tracks.

IN our last issue we suggested the advisability of experimenting with concrete or reinforced concrete for roads in this country, that have, owing to altered conditions, to bear heavy and fast traffic. We stated the objections against the use of concrete for road surfacing, but we consider that though it may not suit in congested areas in cities or towns, it should serve admirably well on thoroughfares that skirt open areas dedicated for public use, where the sites on either side are not likely to be dug up or built upon, and where alternative routes, when such roads are closed for repair, are available. Such localities do exist in almost every town in India, and where the roads therein are subject to a large volume of traffic both heavy and fast, we think the objections to the adoption of concrete surfacing cease to have much force. Its extensive adoption in America makes us realise that there is something in concrete roads.

If all the items of consideration including initial and maintenance costs render a concrete road impossible, we would ask the road engineers to consider an alternative, which is that of trying the system of introducing reinforced concrete wheel tracks. By this system moulded blocks with the reinforcement embedded in them are made in situ, and placed in parallel trenches formed in the ordinary macadam road. The upper faces of the tracks may be flat, rounded, or flat with rounded or bevelled edges, to prevent skidding. The surfaces may also be scored or grooved, to provide foothold for horses, and to allow of drainage. Metal edgings are recommended to protect the upper edges of the surfaces from wear and tear of crossing traffic. The tracks may be laid in single or double pairs, or extra parallel strips provided in addition to suit the various gauges and conditions of traffic. The inventor of this system is Mr. James Chapman of Forfar, who considers that it will go a great way to meeting the difficulties of road construction.

It appears to us that the concrete blocks may fail by the likelihood of the sinkage or depression of the softer macadam abutting against the unyielding blocks, but an intelligent road engineer should be able to obviate this. We draw the attention of our readers to the invention, and would suggest experiments on a small scale, and shall be glad to welcome suggestions and improvements for making an efficient road surface.

The Tale of a Newly-made Road.

Scarcely had the roller left it, left it a compacted mass,
Than a dark-browed man surveyed it, said there was a
smell of gas—

Sent for ruthless men who dug it, dug it out in trenches
wide,

Filled these chasms up at random, caring not if they'd
subside.

Forthwith came a gaunt inspector, said a water-main
had burst,

Followed suit, and dug more trenches—of the two he
was the worst.

Not content with this destruction, came there forth the
engineer

Of the electric light- department, who was quite a
pioneer;

Saw his way to get “consumers,” said he’d lay a cable
there,

Ripped the road right up the centre, laid its very bottom
bare.

The surveyor when he saw this, saw this wreck of months
of toil,

Wondered why the law allows it, thus a brand-new road
to spoil;

Said things not quite parliamentary—can one wonder
that he swore?—

Asked himself pathetically, Why was this not done
before?

Quoth the Raven—“Never more!”

H. P. B. in the *Surveyor*.

Rules for the Management of Water Works in Assam.

IN order to ensure efficient and economical maintenance of water works, the Assam Government have published a set of rules for the observance of Municipalities in that province. The efficient management of water-supply systems is in our opinion a most important matter, and the Assam Government have done well in providing against their neglect.

For want of space we are unable to extract the rules—nineteen in number—in full. They provide for adequate

supervision and control by Government experts. The following is a summary of the main provisions in the rules.

1. Every Municipal Council possessing a water-supply shall be responsible for the proper application of water-supply funds and shall be guided in all engineering matters by the Sanitary Engineer who shall exercise complete professional control over the water works staff.

2. The Sanitary Engineer shall inspect or arrange to inspect every water works not less than once a year, and submit a report to the Sanitary Board and the Municipal Council.

3. The Municipal Council shall submit to the Sanitary Engineer monthly reports showing progress made in regard to the Sanitary Engineer's recommendations. In addition, the Council shall submit to the Sanitary Engineer returns every month relating to the Pumping Plant, Filters, etc.

4. The Executive Engineer of the Division in which a water works is situated shall carry out monthly inspections of the water works and submit reports to the Municipal Council.

5. The Sanitary Commissioner shall arrange for the water to be examined chemically and bacteriologically not less than once a quarter. The results of such examination shall be forwarded to the Municipal Council and the Sanitary Engineer.

6. The rules also provide for the delegation of the duties prescribed, to a Water Works Committee who in all matters relating to the administration of the water-supply shall act as agents of the councillors and exercise all powers vested in the council.

We would refer our readers for further details to the *Assam Government Gazette* of October 7th, 1917.

The rules appear to be complete and, if strictly enforced, should make for economic and efficient management. We trust that the other Local Governments who have not as yet framed such rules would consider the advisability of supplying the omission.

Administration of Municipalities (1916-17)

Gleanings from Reports.

(The Editors will be glad to receive copies of Annual and other Reports of Local Bodies.)

ADONI. NEED FOR MORE ENERGETIC ADMINISTRATION.—
A The attendance of both official and non-official councillors at municipal meetings was very poor, and Government naturally doubt if much real interest is taken by them in municipal affairs. It is regrettable that the "administration has fallen off and that there are general indications of weakness and want of energy." The District Medical and Sanitary officer passes severe strictures on the Sanitary Inspector who is reported to be indifferent except on the days of formal visit by the superior inspecting officer "and regards his post as a sinecure one." Adoni is a growing town and there is a lot to be done to meet the requirements of the future. We hope the next report of the Council will show a more satisfactory record of civic work accomplished.

Anakapalle. WANT OF HARMONY IN THE COUNCIL.—It is reported that the "relations between the chairman and councillors are anything but smooth," and the District Collector apprehends that the state of disharmony which exists in the Council does not promise well for the coming year. Government consider that this disharmony is perhaps responsible for the lack of energy indicated in the Administration Report and for the small progress which seems to have been possible with regard to special works. We appeal to the civic patriotism of the councillors and we hope they will forget any personal differences and work for civic advancement. Remember that failure in local self-government disqualifies us from claiming a larger share in the government of the country.

Berhampur. CIVIC CO-OPERATION.—A standing committee consisting of 5 councillors, whose functions are purely advisory, was formed to advise the chairman on all matters financial. The committee, however, extended its activities to many other matters of importance and their recommenda-

tions were generally helpful. But the danger of surrendering the chairman's rights to an advisory committee must be guarded against and the duties of the chairman must be fully realised so that the responsibility of administration may not be shifted to the committee. Sanitary committees for each ward consisting of two respectable persons who were willing to work with the ward councillor were appointed. The members regularly visit the wards and send up their reports to the chairman. On the committees, there are pensioned officers, private qualified medical practitioners and merchants. We congratulate the chairman on this happy idea of availing himself of the services of leading ratepayers outside the council, and we have no doubt that such civic co-operation will greatly tend to improve municipal administration. We commend the system to the chairmen of other municipalities.

Chingleput. COUNCILLORS INDIFFERENT.—The report shows a decline in the percentage of attendance of non-officials and of the entire body of the council. The Chairman has been energetic and has done his best, but it is to be regretted that his efforts have not been well seconded. There is much to be done, especially in the field of sanitation. The council has a large unspent balance of provincial grants and there is much scope for constructive work. We earnestly hope, with the District Collector, that there will be a marked improvement shown in the next report.

Cocanada. CREDITABLE ADMINISTRATION.—“The municipal administration appears on the whole to have been admirable and much credit is due to the Chairman, the Hon'ble Rao Bahadur K. Suryanarayanamurti Garu.” Thus the Collector has summed up the results of the year's administration.

Twelve elections were held during the year under the revised election rules, of which as many as ten were contested. Unprecedented interest was evinced at the polls, giving evidence of a spirit of civic pride and healthy rivalry, and we

are particularly glad to notice that these keenly contested elections were not followed up, as in certain other places, by election disputes.

The pressing problem is that of making the water supply adequate to the requirements. The existing water works were constructed in 1903 and since then the town has expanded on all sides and the population has vastly increased. The town has only an intermittent supply.

The town is being extended and it is reported that plans and estimates for laying water mains in the Elwinpeta Extension are awaiting professional sanction. But we doubt the wisdom of extending the water supply without making provision for increasing the capacity of the head works. We do not believe that mere repair of old filter beds will be sufficient to meet the situation.

With regard to the Elwinpeta Extension, we are rather disappointed that no particulars are furnished in the Chairman's Report regarding the lay-out of the extension and the measures taken for preventing a haphazard growth of residences. We hope the Council does not think it has discharged its duty and solved the housing problem by merely selling the house-sites and realising over half a lakh of rupees. The announcement that "the realisations already made (amounting to over Rs. 54,000) will be invested with the Bank of Madras" is not encouraging.

Cuddalore. HAVOC BY CYCLONE.—On the 22nd November 1916, a cyclone with an unprecedented severity caused havoc to life and property. Fruit-bearing garden trees and shady avenue trees for which the town was always noted suffered most by the visitation; considerable damage was also caused to the roads. To clear the roads of the huge stumps of uprooted trees, to fill up the pits formed by the uprooting—often 12 feet in diameter—and to reform the roads and road sides thus damaged cost the municipality much time, labour and money. But by the zeal and energy of the municipal secretary and the P. W. staff, the roads were restored to

their normal condition with the greatest speed and economy. The efficiency of the Hon'ble Dewan Bahadur A. Subrayalu Reddiar's administration has received appropriate acknowledgment by his re-election to the chairmanship of the council. We hope the long delayed scheme for opening out conservancy lanes will have been completed by the time the next report is presented.

Erode. ADMINISTRATION HAMPERED.—The municipal administration of Erode was hampered not only by the prevalence of plague and small-pox in a virulent form, but also by the existence of a factious spirit in the council. As many as six meetings were adjourned for want of a quorum. Erode is a growing town and is in urgent need of large improvements and it is a pity that the administration should suffer from a want of harmony in the council. If only a fraction of the energy devoted to imperial politics is directed towards the development of civic administration, local self-government in Erode will soon make a distinct advance.

Hospet. INCREASE IN COERCIVE PROCESSES.—The Municipal Council continued to be presided over by the official Chairman. Elections were held for the first time to fill up six vacant seats in the council. The attendance of councillors at the Municipal meetings was fair and Government observe there are general indications that interest is taken in Municipal affairs. But the Chairman reports that to elect the vice-chairman, three special meetings were convened but that no candidate succeeded in obtaining the requisite number of votes.

The outstanding feature of the year's administration is the somewhat abnormal increase in the number of prosecutions that were instituted by the council. There were as many as 473 prosecutions during the year under report as compared with 151 in the previous year. It is hoped there will be less need for coercive processes in future. The elected councillors should try to educate their constituencies and secure their civic co-operation:

Education is still backward, the proportion of pupils under instruction to the population of school-going age being far below the average for the presidency.

The town was visited by plague but, thanks to the personal exertions of the Chairman, it was stamped out with promptitude. There was also an outbreak of cholera but the energetic steps taken to combat the disease resulted in comparatively light mortality. The chief source of cholera infection was the channel water used by the agricultural labourers for drinking purposes. The attention of the council must be directed to improving the water supply of the town.

Kumbakonam. AN ALL-ROUND PROGRESS.—The Collector reports that “the council worked harmoniously and much credit is due to the Chairman and the councillors for the decidedly efficient administration during the year.” With a practical, matter of fact and earnest Chairman like the Hon’ble Rao Bahadur V. K. Ramanuja Achariar, municipal administration is bound to be efficient and successful.

One satisfactory feature of the administration was that while the collections were very good, there was a large decrease in the number of warrants issued. This no doubt indicates the standard of civic responsibility realised by the people in the town.

Owing to defective drainage, the sanitation of the town greatly suffers, but we feel sure that the Chairman will endeavour to improve public health by replacing the offensive cesspools by suitable filter trenches.

The council maintained 6 elementary schools in which education is free. The opening of an additional elementary school has been sanctioned by the Government who have however ordered the levy of fees. The council apprehends that the levy of fees in one school while education is free in the others, may cause discontent among the people.

Nellore. A DULL YEAR.—We do not find anything particularly striking or noticeable in the administration during

the year under review. The Collector regrets the want of harmony among some of the local city fathers. It is difficult to guess how far this want of harmony has affected the administration and retarded progress. The roads are reported to be bad and an extension of the water supply so as to serve the higher localities in the town is an urgent necessity. There is much work to be done and we hope that the new Chairman will display some tact and remove all sources of friction and enlist the active co-operation of his colleagues in the council.

Ootacamund. A RECORD OF PROGRESS.—As the seat of the Government for half the year, Ootacamund has always enjoyed special facilities in securing the sympathy and attention of the Government. And when in addition to this circumstance, the Chairman has the cordial support and co-operation of the council, the administration cannot but be maintained at a high level of efficiency. Various and important works have been carried out during the year. The roads have been maintained in a good state of repair. The collection work has been satisfactory and with the appointment of a new revenue superintendent, the work of the collection department is expected to be still more efficient during the current year. The investigation into the prevalence of malaria was made by a special malaria officer during the year and his conclusion was that Ootacamund was not malarial. In this connection, we are glad to notice that a liberal provision has been made in the current year's budget for the treatment of swamps, ponds, etc., in the town so as to reduce the risk of danger to public health from these sources.

One of the plague preventive measures tried for the first time by the Council was to send mendicants arriving from the mufassal on the occasion of the Ramzan festival back to their homes. The experiment cost the municipality Rs. 213 but judging from the success which attended the experiment, the money has been well spent. 342 mendicants were thus sent back.

Palamcottah. SUGGESTED INCREASE IN THE RATES.—The administration of the Municipality has been efficient and the Collector pays a well-merited tribute to the Chairman's good work. But we imagine that the Collector himself has contributed in no small measure to the success of the administration. His "endorsement" on the Chairman's Report when forwarding it to the Government is in refreshing contrast to the dull and formal endorsements of other Collectors. Mr. Galletti is keenly interested in the advancement of local self-government in this country but the routine of administrative red-tapism often proves an impediment to free action.

The difficulties experienced by the council are pointed out by him in the following paragraph, and we trust his suggestion as to the desirability of increasing the taxes on houses and lands to the maximum rates will be accepted by the council.

"The expenditure under the head, Repairs—communication was only Rs. 6,305—a miserably small amount for so extensive a town, but I cannot see how more can be allotted unless taxation is increased. Water-supply, education, hospitals are more important objects of expenditure than the roads. The council have a small balance but they have been saving money for some years past to build themselves a municipal office. At present they have to shift the office from one rented building to another, which is not convenient or economical. The fact is that more money is required under every head of expenditure, more money is wanted for wells, more money for schools, more money for hospitals and more money for the roads, and in this connection I draw attention to the fact that the house and land taxes are not yet raised to the maximum rates. The wonder is that so much is done with so little money. The rate-payers will not object to a slight increase in the rates, knowing as they do, that they will get full value for any money entrusted to their Municipal Council and its experienced and capable Chairman, Rao Bahadur S. Kumaraswami Reddiyar."

Municipal By-Laws and Regulations.

Speeches at Municipal Meetings (Harihar, Mysore).

A COUNCILLOR shall not read his speech, but may refresh his memory from notes and may, with the consent of the presiding authority, read passages from books or documents cited in behalf of his argument.

Notice of Re-occupation.

When an owner has given notice of vacancy, he shall also give notice in writing within 15 days to the President of the subsequent re-occupation and failing this shall not be entitled to any refund if it be found that his premises have been re-occupied during the year or instalment period.

House Building Advance to Municipal Employes, (Punjab).

In exercise of the powers vested in the Local Government under section 240 (1) of the Punjab Municipal Act, 1911, the Lieutenant-Governor has been pleased to make the following rules for the grant of house building advance to the employes of municipal committees:—

A Municipal Committee, which, with the sanction of the Local Government, has under section 52 (2) (1) of the Punjab Municipal Act, 1911, declared the grant of house building advances to its employes to be an appropriate charge on the municipal fund, shall, so far as may be, grant such advances in accordance with the rules regulating and on the conditions laid down for the grant of such advances by Government to Government servants; provided that no advance shall exceed six months' salary of the employe to whom it is granted, and that advances must be recovered in not more than 24 equal monthly instalments.

2. No municipal committee shall grant a house building advance to any of its employes without the previous sanction in each case of the Commissioner.

Legislative Intelligence.

[Bengal].

AT the meeting of the Bengal Legislative Council held on September 4th 1917, a question was asked with regard to the legislation which Government were prepared to undertake in the near future. His Excellency the President in the course of his concluding address gave a forecast of the contemplated legislation. His Excellency said :—

Hon'ble Members will be aware no doubt that a question has been asked with regard to the legislation which Government are prepared to undertake in the near future, and I promised in reply to that question to make a statement at the conclusion of our proceedings to-day. It may be remembered that when I was bringing the proceedings of this Council to a conclusion at the end of the last cold weather session on the 3rd April, I expressed a hope that before we met again for another cold weather session I should be able to invite Hon'ble Members to co-operate with the Government in undertaking useful legislation. I am not yet in a position to say that the hopes which I then expressed are on the point of being completely realised, but I can at least say that they are on the way towards realisation. There are many matters of varying importance with which we are very anxious to deal, and though I am not in a position at this moment to give you a cut and dried programme of legislation I can indicate to you the matters with which we expect to be able to deal in the near future. And I can give you some idea of the prospects which there are of our being able to do so. We have already introduced and have to-day referred to a Select Committee the Bengal Tenancy (Amendment) Bill. It is of course a small measure which deals with one aspect only, and that a restricted aspect, of the whole question of Tenancy Law in this Presidency. Of other Bills which we hope to be able to introduce in the near future, the Public Demands Recovery (Amendment) Bill is now ready and will be introduced, I hope, at the first cold weather meeting of the Council. The Legislative Secretary reminds me that though the sanction of the Government of India has been received to that measure the sanction of the Secretary of State has not yet been received. I have no reason to doubt however that it

will be received in time to introduce the Bill at the first meeting of the cold weather session. In itself the Bill is a small Bill, but I hope that it may prove to be a useful measure, for it is designed entirely in the interests of the co-operative movement.

Next come two Bills which are practically ready, but certain details of which are still under discussion between the Government of India and ourselves. They are the Calcutta Hackney Carriage Bill and the Bengal Disqualification Bill. The latter is a small Bill which has for its object the disqualification, with certain exceptions, of persons who are not British subjects from voting for or sitting upon local bodies.

Next, I would like to mention two Bills, the drafting of which has been completed so far as the Bengal Government are concerned and which have been submitted by us to the Government of India for their approval. These include the Darjeeling Hill-sides and Rivers Conservation Bill, the Serampore College Bill, the Calcutta Municipal Bill, and the Village Self-Government Bill. I need hardly say that the last two measures are measures of great importance which are likely to rouse wide interest. Last but not least is the Adulteration of Food Bill to which the Hon'ble Sir S. P. Sinha has already referred, a Bill upon which we are still at work, but which we hope to be able to submit to the Government of India at a very early date.

Hon'ble Members may perhaps think that this is a somewhat formidable programme and they may perhaps entertain some doubts as to whether a Bill like the Calcutta Municipal Bill comes within the category of noncontroversial Bills, to the consideration of which I suppose we are still more or less restricted by the political truce. Well, the Government so far as that goes, are in the hands of the Legislative Council. If the Calcutta Municipal Bill were to prove to be a highly controversial measure, Government would be prepared to reconsider their attitude in regard to it, that is to say, if they find that it is a measure which is likely to excite great controversy, they will be prepared to postpone the further consideration or discussion of it, at any rate, so long as the political truce is in existence. But I have some hopes that it will not prove to be an unduly controversial measure, for when I first reached Calcutta the deputation from the Corporation of Calcutta which waited upon me expressed

the hope that the Bill would receive my early attention and they went on to say that this is a measure which will give the city a larger measure of local self-government "and though some difference of opinion may perhaps arise when the Bill is debated, yet we see no reason for apprehending any failure to reach an amicable settlement of the questions that will be discussed;" and in reply to that representation which was made to me I said that I was well aware of the importance which the Corporation attached to the passage of the Calcutta Municipal Bill and that I was prepared to give the passage of it my most careful consideration. At the same time, I noted with satisfaction that while they anticipated some difference of opinion they at the same time saw no reason to doubt that an amicable settlement of the question would be reached.

In other words, I practically gave the Corporation a promise that if their anticipation that the Bill would not be found to be of a highly controversial nature was fulfilled, then I and my Government would do all that lay in our power to press on with the matter. That, gentlemen, is the position so far as the Bengal Government are concerned. In addition to these Government Bills, there are two private members' Bills of which notice has been given, one dealing with Juvenile Smoking and one dealing with the question of free and compulsory primary education. These are Bills of which notice has been given by private members and which will no doubt in due course come before the Council for discussion.

The Hon'ble Babu Bhabendra Chandra Roy asked when and for what purposes the equilibrium grant to the District Boards was first initiated and what the average annual receipt was in the case of each District Board on that account during the five years preceding its resumption in 1913?

Government replied as follows:—

On the formation of District Boards in Bengal under Act III (B.C.) of 1885, the administration of cattle pounds, of certain public ferries and also of certain charitable dispensaries in the districts, which had formerly been controlled by Government, was transferred to those bodies. In addition, the Boards were entrusted with the management and control of middle and primary education. To enable the Boards to meet the cost of the services transferred, receipts from

ferries and pounds, as well as from schools and hospitals placed under their management, were assigned to them. Expenditure which devolved on the Boards in excess of the receipts thus assigned was met by the grant of subventions from Government, which were calculated so as to establish equilibrium between the receipts and charges transferred. Along with the control over middle and primary education were also transferred the services of the Sub-Inspectors of Schools employed by Government, and the salary and travelling allowance of these officers formed a part of the charges with reference to which the Boards' equilibrium grants were fixed. The services of the Sub-Inspectors of Schools having been provincialized (in West Bengal in 1905-06, and in Eastern Bengal in 1908-09), the District Boards were relieved of charges on this account, and the equilibrium grants were reduced correspondingly.

The following Statement showing the annual equilibrium grant for the five years ending on the 31st March, 1913, was also laid on the table :—

District Board.		Average annual grant for the five years ending on the 31st March, 1913.	District Board.		Average annual grant for the five years ending on the 31st March, 1913.
		Rs.			Rs.
Burdwan	..	30,439	Faridpur	..	24,339
Birbhum	..	14,676	Bakarganj	..	28,116
Bankura	..	30,217	Chittagong	..	9,345
Midnapore	..	36,197	Tipperr	..	33,296
Hooghly	..	27,413	Noakhali	..	14,306
Howrah	..	13,251	Rajshahi	..	7,624
24-Parganas	..	24,854	Dinajpur	..	11,028
Nadia	..	3,405	Jalpaiguri	..	2,245
Murshidabad	..	4,045	Rangpur	..	12,067
Jessore	..	9,536	Bogra	..	3,191
Khulna	..	24,141	Pabna	..	10,831
Dacca	..	28,711	Malda*	..	..
Mymensingh	..	22,908			

[Assam.]

FREE AND COMPULSORY PRIMARY EDUCATION.

The Hon'ble Babu Radha Binod Das asked if Government proposed or intended to undertake legislation in order

* No equilibrium grant was made during this period to the Malda District Board as orders were passed in the year 1904 transferring to the District Board certain ferries, the average proceeds of which corresponded to the amount previously granted by Government for the purpose of equalising the receipts and expenditure of the Board.

to make primary education free and compulsory within the municipal areas?

Government replied as follows:—

Primary education is already free within all areas of this province. To make it compulsory within municipal or other areas would not be possible without the levy of a special educational cess which in these present times of stress would tell hardly on the poorer people in the areas concerned. No legislation on the subject is at present contemplated. But when normal times return, the Administration will not be slow to adopt any practicable measures for the spread of education which are consistent with public policy.

The Hon'ble Babu Radha Binod Das asked if the Government would take early measures to prevent import of adulterated *ghee* from Bengal into Assam and to prevent the importation, preparation and sale of adulterated food-stuffs?

Government replied as follows:—

Uptodate provisions for the prevention of the adulteration of food-stuffs have been included in the Assam Municipal Bill and somewhat similar provisions are already in force under the Assam Local Self-Government Act in rural areas.

The Local Administration is aware that a Bill, prohibiting the sale of adulterated *ghee* in Calcutta, has been passed in the Bengal Legislative Council. It is not aware that any measure affecting the rest of Bengal is contemplated.

As the Local Administration hopes to introduce the Assam Municipal Bill very shortly in this Council, it does not propose to take immediate action to prevent the import of adulterated *ghee* from Bengal into this province. It is open to the local authorities, including local boards and municipalities, to utilise the existing provisions of sections 72 to 74 of the Assam Local Self-Government Act and of section 251 of the Bengal Municipal Act, so far as they are applicable. The Sanitary Commissioner has arranged for the regular

collection in municipalities of samples of *ghee* and other food-stuffs liable to adulteration, and for their analysis at the Provincial Laboratory.

[Punjab.]

ADULTERATION OF FOOD BILL.

The following draft Bill framed by the Punjab Government for the prevention of adulteration of food, etc., has been forwarded for the approval of the Government of India, and is published for general information :—

DRAFT BILL.

A Bill to make provision in the Punjab for the sale of food in a pure and genuine condition, and to prevent its adulteration.

WHEREAS it is expedient to make provision in the Punjab for the sale of food in a pure and genuine condition, and to prevent its adulteration : it is hereby enacted as follows :—

1. (1) This Act may be called the Punjab
Short title and extent. Adulteration of Food Act, 191.

(2) This section extends to the Punjab ; the rest of this Act extends only to such local areas in the Punjab as the Local Government may by notification in the *Punjab Gazette* direct.

(3) The Local Government in extending the rest of this Act as provided in sub-section (2) may so extend it in respect of any specified article of food or generally in respect of all articles of food.

2. In this Act, unless there is something
Definitions. repugnant in the subject or context,—

“Food” includes every article used for food or drink by man other than drugs or water, and any article which ordinarily enters into or is used in the composition or preparation of human food, and shall also include flavouring matters and condiments :

“Public analyst” means every person appointed by the Local Government to perform the duties and to exercise the functions of a public analyst as prescribed by this Act.

ADULTERATION.

3. Except in the cases hereinafter excepted, whoever sells to the prejudice of the purchaser any food which is not of the nature, substance or quality of the food demanded by such purchaser, or sells or offers for sale or exposes for sale or manufactures for sale any food which is not of the nature, substance or quality which it purports to be, or which is found on analysis by a public analyst to be below the standard of purity prescribed in respect of such food by this Act, or by a notification of the Local Government under section 16, shall be punished with imprisonment which may extend to six months, or with fine not exceeding one thousand rupees, or with both.

Exceptions.

4. No offence shall be deemed to have been committed in the following cases, that is to say :—

Firstly.—Where any matter or ingredient not injurious to health has been added to the food because the same is required for the production or preparation thereof as an article of commerce in a state fit for consumption and not fraudulently to increase the bulk, weight or measure of the food or to conceal the inferior quality thereof.

Secondly.—Where in the process of production, preparation or collection of such food some extraneous matter has become unavoidably intermixed therewith.

Thirdly.—Where any matter or ingredient not injurious to health and not intended fraudulently to increase its bulk, weight or measure, or to conceal its inferior quality, has been added to or mixed with such food, and before the sale thereof the seller has brought to the notice of the purchaser either by means of a label distinctly and legibly written or printed on or with the food, or otherwise, the fact that such matter or ingredient has been so added or mixed.

Fourthly.—Where the food is a proprietary food, or is the subject of a patent in force, and in the latter case is supplied in the state required by the specification of the patent.

Fifthly.—Where the food sold or offered for sale or exposed for sale was purchased by the seller as the same in nature, substance and quality as that demanded by the purchaser or as that offered or exposed for sale by the seller, and with a written warranty to the effect that it was of such nature, substance and quality, and the seller had no reason to believe that the food was not of such nature, substance and quality at the time when he sold it, and he sold it in the same state in which he purchased it. This exception is subject to the provisions of the next following section.

5. A warranty shall not operate to bring any case under exception

Fifthly of section 4, unless, in the event of proceedings being taken against the seller, he produces the warranty in court on his first appearance or within 7 days of the summons being duly served on him, whichever is earlier.

6. Where a warranty has been successfully pleaded, proceedings may be taken against the person who gave the warranty in any competent court having jurisdiction in the place in which the food was sold or offered or exposed for sale.

Proceedings against the warrantor.

7. In any prosecution under this Act the court may presume that any food found in the possession of a person who is in the habit of manufacturing the like food has been manufactured for sale.

Presumption in regard to manufacture.

8. In any prosecution under this Act it shall be no defence to allege that the seller was ignorant of the nature, substance and quality of the food sold or offered for sale or exposed for sale or manufactured for sale by him, or that the purchaser having bought only for analysis was not prejudiced by the sale.

Plea of ignorance.

PUBLIC ANALYSTS.

9. The Local Government may by notification in the *Punjab Gazette* appoint any person whom it may think fit to be a public analyst in respect of any area prescribed thereby.

Public analysts.

10. Any purchaser of any food shall be entitled on payment of such fees as the Local Government may prescribe to have such food analysed by the public analyst appointed for the area within which such food is purchased, and to receive from him a certificate of the result of the analysis.

Analysis at request of purchaser.

11. Subject to any rules made by the Local Government under section 17 of this Act, any person duly authorised either specially or generally in this behalf by the local authority or by the Local Government may procure any sample of food, and shall submit the same to be analysed by the public analyst for the area within which such sample is purchased.

Purchase of sample.

12. If any person duly authorised by section 11 of this Act applies to purchase any food offered or exposed for sale and tenders the price for a quantity not more than is reasonably requisite for the purpose of analysis, and the person offering or exposing the same for sale refuses to sell the same, the person so refusing shall be punished with fine which may extend to five hundred rupees.

Refusal to sell sample.

13. (1) Any person purchasing any food with the intention of submitting the same to be analysed by a public analyst shall, immediately after the purchase has been completed notify to the seller or his agent selling the food his intention to have the same analysed as aforesaid, and shall offer to divide the food into three parts to be then and there separated and each part to be marked and sealed or fastened up in such manner as its nature permits, and shall if required to do so proceed accordingly, and shall deliver one of the parts so marked and sealed or fastened up to the seller or his agent.

Division and sealing of samples.

He shall afterwards retain one of the said parts for future comparison and submit the third part, so marked and sealed or fastened up, if he deems it right to have the article analysed, to the public analyst.

(2) If the seller or his agent do not accept the offer of the purchaser to divide the food purchased in his presence, the public analyst receiving the food for analysis shall divide the same into two parts and shall seal or fasten up one of those parts and shall cause it, either upon receipt of the parcel or when he supplies his certificate, to be delivered to the purchaser, who shall retain the same for production in case proceedings are afterwards taken in the matter.

14. (1) Every public analyst to whom any food has been submitted in accordance with the provisions of this Act shall deliver to the person so submitting it a certificate, in the form prescribed in the schedule appended to this Act, specifying the result of his analysis, and shall send a copy of the same to the local authority concerned.

(2) Any document purporting to be such a certificate under the hand of a public analyst may be used as evidence of the facts therein stated in any enquiry, trial or other proceedings under this Act.

Standards.

15. Butter and *ghee* shall be made exclusively from milk or cream or both, with or without any preservative or colouring matter not injurious to health. Any butter or *ghee* not so made shall be deemed to be below standard for the purposes of this Act.

16. The Local Government may after such enquiry as it deems fit declare by notification in the *Punjab Gazette* what deficiency or excess in any of the normal constituents of any food or what proportion of extraneous matter shall be deemed to raise a presumption that such food is below standard for the purposes of this Act

Rules.

17. The Local Government may make rules consistent with this Act—

(a) regulating the appointment and qualifications of persons empowered under section 11 to procure samples of food ;

(b) prescribing the areas within which such persons shall exercise their powers ;

(c) generally to carry into effect the provisions of this Act.

S. W. GRACEY,
Secretary, Legislative Council.

O. F. LUMSDEN,
Member.

SCHEDULE.

FORM OF CERTIFICATE.

* To.

I, the undersigned, public analyst for the _____, do hereby certify that I received on the _____ day of _____ 19____ from _____ a sample of _____ for analysis (which then weighed _____) and have analysed the same and declare the result of my analysis to be as follows :—

I am of opinion that the same is a sample of genuine _____
or _____

* Here insert the name of the person submitting the article for analysis.

† Here insert the name of the person delivering the sample. If the sample is received by post or by railway, entry should be made accordingly.

‡ When the article cannot be conveniently weighed this passage may be erased or the blank may be left unfilled.

I am of opinion that the said sample contained the foreign ingredient or ingredients in the approximate proportion or proportions stated below, and that the said proportion or proportions ^{is excessive} _{are negligible}

* OBSERVATIONS.

Signed this day of 19 ,
 A. B.
 at

Statement of Objects and Reasons.

The object of the present Bill is to secure that food intended for human consumption shall be sold in a pure and genuine condition, without adulteration. The Bill is based on the English Sale of Food and Drugs Acts and the Act on the same subject which is in force in the United Provinces, but some changes have been made in arrangement and in details.

The Bill does not deal with drugs as it is considered that the sale, adulteration and substitution of drugs are already adequately dealt with in the Indian Penal Code.

The arrangement of the Bill is as follows. After certain definitions come the clauses dealing with the offence of adulteration and the exceptions thereto. They are followed by clauses relating to certain defences, presumptions and pleas. The clauses relating to public analysts, analysis at the request of private purchasers, the procuring of samples by authorised officials and the analysis of such samples, the division and sealing of samples intended for analysis and analysts' certificates are brought in next. A statutory standard of purity for butter and *ghi* is fixed, and provision is made for notifying standards for any specified articles of food. The final section confers a rule-making power.

As to special clauses, the definition of food is the amplified definition now in force in England. Clause 3 dealing with the offence of adulteration requires to be read with the kindred sections of the Indian Penal Code, and, taken with those sections, covers most of the ground covered by the operative sections of the English Acts. The case of food which is below the standard fixed by the Bill or by a notification under the Bill is brought within the clause.

The exceptions set out in clause 4 are those now accepted in England. The case of warranty has been specially dealt with in clauses 5 and 6. These clauses seem necessary in order to prevent collusion between the seller and the warrantor.

Clauses 9 to 14 deal with analysis and follow much the same lines as the United Provinces Act, which are in turn based on the provisions of the English Statutes. They do not call for special comment.

Clauses 15 and 16 relate to standards. Butter and *ghi* are specially dealt with. Cf. section 3 of the Margarine Act, 1887. Clause 15 is not exhaustive,

* Here the analyst may insert at his discretion his opinion as to whether the mixture (if any) was for the purpose of rendering the article potable or palatable, or of preserving it, or of improving the appearance, or was unavoidable, and may state whether in excess of what is ordinary or otherwise, and whether the ingredients or materials mixed are or are not injurious to health.

In the case of a certificate regarding milk, butter or any article liable to decomposition, the analyst shall specially report whether any change had taken place in the constitution of the article that would interfere with the analysis.

and it will be open to the Local Government to fix a further standard of purity for these two articles under clause 16, *e.g.*, by declaring maximum or minimum proportions of water, milk solids, milk fat, and so on. The fixing of standards for other articles is a subject of some difficulty and has been left to the Local Government to take up as necessity arises and information becomes available. Even though an article may have no recognised or statutory standard, it will be open to the court to find on the evidence before it that the article has been so badly adulterated as to constitute an offence under the Bill.

Certain general sections of the United Provinces Act have been omitted from this Bill either as unnecessary or as unsuitable to Indian procedure.

- In Municipalities the provisions of the Punjab Municipal Act in regard to seizure, search and licensing can be used to supplement the provisions of the present measure.

The penalties are those prescribed by the Penal Code for cognate offences. A substantial penalty has been fixed for a refusal to sell a sample, as such refusal might save the offender from a prosecution for adulteration. The penalties in force in the United Provinces being at variance with those prescribed by the Penal Code have not been adopted.

[Burma.]

GHEE ADULTERATION.

In view of the evils resulting from widespread adulteration of *ghee* it was considered necessary that more stringent measures should be taken to provide for the purity of the article and to penalize the manufacture, storage and sale of *ghee* which is not derived exclusively from milk or which is adulterated, unwholesome or unfit for human food. Leave to introduce the *Burma Ghee Adulteration Bill* was accordingly granted.

The Bill was passed at the meeting of the Legislative Council on October 24th.

[United Provinces].

The United Provinces Municipalities (Amendment) Bill, 1917, was introduced into the Legislative Council on the 1st October 1917. The object of the Bill is to enable terminal taxes to be imposed in municipalities in which octroi was previously levied, with the sanction of the Local Government and without the intervention of the Government of India.

Reviews.

Consumption.*

THIS is a very useful little book on consumption published at the right moment. The gradual increase in the prevalence of this disease in this country is due mainly to the ignorance of the people on the subject. Consumption is a curable disease in the early stages, but when neglected it

* Consumption: Home treatment and rules for living adapted for India. By Crowe and Sprawson. Butterworth and Co. (India,) Ltd., Hastings Street, Calcutta. Price 8 annas.

rapidly progresses and kills off the patient. As no treatment is satisfactory in the later stages, it is highly desirable that people should know whether they are suffering from the disease and, if so, what should be done to arrest its progress.

The necessary information on the subject is given in simple language in this book. The book is not meant to replace the doctor or to render a doctor's advice unnecessary. It is intended as an aid both to the doctor and the patient, by putting in print advice that would occupy much of the doctor's time in telling the patient; and giving that advice in a form that may be easily understood—advice that will probably suit his particular case but which his doctor may have to modify in a few details. The book costs only 8 annas and should be in the hands of everybody.

Kala-Azar: Its Treatment.*

Dr. Upendranath Brahmachari has done a distinct service to the medical world in publishing his book on *Kala-Azar: Its treatment*, in which he has recorded his vast experience in the curative side of this deadly disease. As this disease is believed to be endemic in certain parts of the city of Madras, the book must be of great value to Madras medical men.

Several drugs from A to Z of the British and Foreign Pharmacopia were tried as cures. Quinine and other alkaloids, Bone marrow, Extracts of Ductles Glands, various preparations of Arsenic, Bismuth, and several antiseptics have after all been found of no value in this disease, although at the time of their introduction into the medical world, they appeared hopeful. Dr. Brahmachari's investigation and work have, at last, resulted in the discovery of a method of treatment by antimony which may be taken as a specific against the disease, as quinine is in the case of malaria.

The method consists of injecting, into the vein, metallic antimony in a state of finest division, and as such has to be carried out by an expert physician at the bedside. Other

* KALA-AZAR: ITS TREATMENT. By Upendranath Brahmachari, M. A., M.D., Ph.D., Rai Bahadur. With a foreword by the Hon'ble Surgeon-General W. R. Edwards, C.B., C.M.G., M.D., I.M.S. Butterworth & Co. (India) Ltd., Calcutta. Price Rs. 5-10-0 net.

preparations of antimony have not been found to be of so great a value as antimony in the metallic form, which holds out the best chances of cure. Dr. Brahmachari hopes "that soon after the war is over, we shall discover a colloidal preparation of a non-toxic or almost non-toxic antimony compound which, when given in minute doses, will bring about an absolute sterilization of the organs against the leishmania". Then this new drug would be administered by "the humblest medical man without his being acquainted with the technique of intravenous injection."

Dr. Brahmachari has devoted a small chapter dealing with prophylaxis. As yet nothing is known with reference to the methods of communication of *kala-azar* from man to man; and it is found difficult to lay down definitely the lines along which prophylactic treatment can be conducted. Bed bugs have been incriminated in the transference of the disease from man to man, but not definitely proved. The disease is, by common consent, taken to be a house-infection, members living in an infected house contracting the disease. Segregation of affected persons, removal of inhabitants from infected lines to fresh lines, the prevention of infected persons visiting the new lines, and attempts to destroy all forms of insect life in the infected house and those around them in cooly lines—these and such analogous measures—have given promising results towards preventing the spread of the disease.

One other method* of preventing *kala-azar* has been forestalled by Manson, i. e., the preparation of a serum or vaccine by passing the *kala-azar* germ through the camel to get rid of its virulence, just as the small-pox germ is made to pass through the cow. This conjecture deserves future investigation.

* Vide p. 849 *supra*.

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DECEMBER

[1917

Municipal Administration in the United Provinces (1916-17).

IN our note on the review of the Municipal Administration of the United Provinces during 1915-16*, we pointed out that the Municipal Bill had not yet become law and that the year had therefore been a period of expectation of the notable changes which were shortly to deprive the Municipalities of the Province of immediate official guidance. We now note from the review of the Local Government that the new Municipalities Act II of 1916 was brought into force from 1st July 1916 and that the year under review was accordingly one of the most important in the history of Municipalities in the United Provinces. From a political point of view, the Lieutenant-Governor observes, the prominent feature of the new Act was that it had as one of its main objects the removal of the guidance and control exercised by official chairmen and the endowment of the emancipated non-official Boards with adequate powers to manage the affairs of Municipalities and prove their fitness for the exercise of the functions of self-government. Another important factor is the provision for separate class representation. The constitution of the several Boards had therefore to be radically revised and advantage was taken of this opportunity to introduce a system of triennial elections in place of the

* Vide p. 419.

system of the annual elections—a change which, it is stated, was generally welcomed by the Boards. Several Boards, however, postponed the reconstitution till the end of the year while others, mainly the smaller Municipalities, preferred to retain their official chairmen for the time being. Out of a total number of 84 Boards, 59 including practically all the larger Boards, had elected non-official chairmen. We notice that in the case of a few Municipalities, Hindu candidates either declined to stand or resigned after election on the ground that they were dissatisfied with the constitution proposed for their Boards. The Commissioners of the Divisions concerned, however, derive some satisfaction by reporting that the interests of the Hindu community have in no way suffered on this account and that the work of the Boards has not deteriorated owing to the absence of these few Hindu members. It appears to us that in making this report, the Commissioners have unconsciously furnished an argument against the system of class representation in local and municipal Boards. If the absence of representatives of one large section of the local community cannot affect the proper administration of civic affairs, where then is the need for yielding to the clamour of communal representation in these Boards?

As is natural, the general elections in connection with the reconstitution of Boards aroused great interest and the fact that the Boards were allowed to elect their own chairmen and were to be set free from immediate official control, led to very keen contests in most of the municipalities. The Lieutenant Governor notes with some satisfaction that the elections were on the whole conducted very fairly and efficiently by the returning officers. It is regrettable, however, to observe that in four cases it was found necessary to disqualify candidates for malpractices, for five years, and in one case to prosecute a voter for personation and in another case there was reason to suspect the bona fides of the returning officers.

Although the Local Government has power to require the appointment of an executive officer by Boards and City

Municipalities only, it is observed that several other smaller Boards have of their own accord appointed executive officers. The Lieutenant-Governor hopes that as time goes on, the remaining Boards will no doubt realise the advantages of appointing executive officers or of delegating extensive powers in matters of detail, retaining in their own hands the power of dictating the general policy to be pursued and full financial control.

We pointed out last time that the process of converting octroi into the simpler form of terminal taxation which had been in operation for the past few years had not yet been completed during the official year 1915-16. We notice that no further progress was made in the abolition of octroi even during the year under report. This form of taxation remained in force in 34 Municipalities, the same number as last year, and the net income from this source shows a further increase of 2½ lakhs on the figures of the previous year.

The financial position of the Boards is stated to be on the whole satisfactory but it is pointed out that in few cases have the Boards an income more than sufficient for the maintenance of their present services and that there is great need for economy and for development of existing resources if an early expansion of the Boards' activities is to be looked for. In this connection, the need for making the water-supply service self-supporting has been emphasised and the Municipal Boards and the people generally have been advised to set their face against the wilful waste of water which is too common at present. A start seems to have been made by the rules framed under the new Act for most of the Municipalities concerned, requiring that private connections shall be metered if used for non-domestic purposes or if the diameter of the connection pipe or of the ferrule exceeds half an inch.

Under education, the Local Government's review notices with satisfaction the opening of six new schools by the Lucknow Board including two preparatory schools for the children

of the depressed classes. It is stated that the latter schools are held in the morning and in the evening and that the number of pupils on the roll was 27 at the end of the year.

The Lieutenant-Governor concludes his review by observing that the period under report being one of transition and re-organisation no important developments in municipal activities could be expected, and that the new system has been under trial for too short a time to allow of any definite conclusions being drawn from past experience or of any prognostications being made as to future developments. He, however, notes with regret the existence of a spirit of faction in some Boards and a tendency to decide questions by feelings of partisanship rather than by a consideration of the general good of the community. In the great majority of the Municipalities, on the other hand, it is encouraging to note that a spirit of good fellowship prevailed in carrying out the changes and that there was genuine co-operation among most of the members to make the new system a success. We therefore share the hopes of the Local Government that this great experiment and advance in local self-government will justify itself in the creation amongst members of Municipal Boards of a fuller sense of responsibility for the interests of their constituents and in arousing in the electorates a keener sense of interest in the doings of their representatives.

It only remains for us to add that while a revised Municipal Act has been introduced in the United Provinces under which the emancipated Municipal bodies have already come into existence and worked for a period of one year, the Madras Government have not yet been able to come to a settlement of the lines on which local self-government in this Presidency should advance in future.

Communal Representation in Local Bodies.

I.

[BY THE HON'BLE MR. YAKUB HASAN, F.M.U.,
COMMISSIONER, CORPORATION OF MADRAS.]

INDIAN nationality is mainly composed of two distinct peoples—the Hindu and Musalman—whose respective population in British India is 163,621,431, and 57,423,889. The only other communities in India who form a distinct people by themselves are Parsees (86,155), Indian Christians (2,092,046), Anglo-Indians (100,451) and Europeans (199,787), whose population as compared with Hindus and Musalmans is, however, too small to affect the composition or character of the Indian nationality. No council or local body can be said to be truly Indian or national that has not Hindu and Muslim elements in due proportion in its constitution. The Government of India has always recognized this obvious elementary fact, and has given Musalmans suitable representation on all public bodies by means of nomination. When the Government saw that Western education, which was making the Hindus rapidly fit for self-government, was not spreading so widely among Musalmans, they made Muhamadan education their special charge. Till 1909, Legislative Councils were only nominated bodies and all communities equally depended on Government for their share in them. When the question of reconstitution was in the air, the famous Muslim deputation waited on Lord Minto at Simla on 1st October 1906 and obtained from him an authoritative declaration which is much valued by Musalmans as a charter of their rights. His Excellency in his reply to the said deputation observed :

“The pith of your Address, as I understand it, is a claim that, in any system of representation, whether it affects a Municipality, a District Board, or a Legislative Council, in which it is proposed to introduce or increase an electoral organisation, the Mahomedan

community should be represented as a community . . . You justly claim that your position should be estimated not merely on your numerical strength, but in respect to the political importance of your community and the service it has rendered to the Empire. I am entirely in accord with you . . . I am as firmly convinced, as I believe you to be, that any electoral representation in India would be doomed to mischievous failure which aimed at granting a personal enfranchisement regardless of the beliefs and traditions of the communities composing the population of this continent . . . I can only say to you that the Mahomedan community may rest assured that their political rights and interests as a community will be safeguarded in any administrative reorganization with which I am concerned."

This pledge was given effect to and the principle of separate representation of Musalmans on legislative bodies was incorporated in the scheme, when Minto-Morley reforms were inaugurated in 1910. It has worked without a hitch in all provinces in the last nine years, which is a practical demonstration of its utility.

The Indian National Congress, which had adhered for over thirty years to the principle of selecting the fittest, irrespective of caste, class or creed, saw the wisdom of conciliating the Musalmans by adopting the principle they had so much at heart. This wise act has replaced distrust and discord with harmony and goodwill and made it possible for the two peoples to co-operate through their respective organizations for the great good of their motherland.

A principle which the Government, the Indian National Congress and the Muslim League have acknowledged to be good for Legislative Councils cannot but be good for all self-governing bodies, and so we need not put in a special plea for its adoption in local self-government. The principle which is now confined only to Musalmans in the Indian and Provincial Legislative Councils will have to be extended, in the case of local self-government, to all important communities inhabiting

each local area. Unless all the peoples in a certain locality are represented on the local body through their chosen members, it cannot be called a popular or peoples' institution. The Madras Provincial Congress Committee has recently adopted a resolution to the effect that "having regard to the peculiar circumstances of this Presidency, the communities in the Province other than Brahmans should also be adequately represented in the Legislative Council." This reason is still more forceful in the case of local self-government.

The principle of communal representation is not a new invention in India, nor has democracy in Europe been strange to it. It prevails in several countries of Europe and America. Through its successful working, perfect harmony and goodwill has been established among four distinct races that inhabit Switzerland—"the most successful democracy in the world". This principle is carried there literally from top to bottom. At the head of the Government, instead of a President, as in almost all democratic constitutions, they have a council of seven members elected by the legislative body on both of which the four races are represented. One of the seven members occupies the chair for one year by rotation, and has no preferential position over others during his chairmanship. All sections of the local community are represented in proportion to their number on the lowest rung of the democracy corresponding to the proposed village panchayet in India, and places are voluntarily conceded to the minority in executive as well as deliberative councils. "Unlike almost every other state in Europe," says Mr. Lowell in his *Governments and Parties in Continental Europe*, "Switzerland has no irreconcilables—the only persons in its territory who could, in any sense, be classed under that name being a mere handful of anarchists, and these are foreigners. The people are contented. The Government is patriotic, far-sighted, efficient, and economical, steady in its policy, not changing its course with party fluctuations. Corruption in public life is almost unknown, and appointments are not made for political pur-

poses by the federal authorities, or by those of most of the cantons. Officials are selected on their merits, and retained as long as they can do their work; and yet the evils of a bureaucracy scarcely exist."

Every community, class or interest that is considered worthy of representation on a particular body should have a proportional number of seats allotted to it. These seats should be filled by election, and nomination should be reduced to a minimum, if not altogether done away with. A uniform set of qualifications should be laid down for all voters for a particular body. Voters of each community should be divided into as many territorial groups as the number allotted to that community. A roll of voters of each group of each community should be published and only the persons mentioned therein forming a group should exercise their franchise in favour of one of the candidates duly nominated for election by that group. This system of election should apply to all elected bodies, only the qualifications should differ for different bodies. The Muslim League has agreed that in case adequate representation is granted to Musalmans they shall not participate in any of the other elections save and except those by electorates representing special interests. The same restrictions may be applied to every community that gets separate representation on a particular body.

In determining the proportion of Muslim seats in a local body their population in that particular area should not be the only point of consideration. The fact that the Musalmans, however poor and humble they may be in that locality, belong to one of the two main component parts of the Indian nationality to whose ancestors in the past India owed as much as it does to that community as a whole in the present, must also weigh in the matter.

NOTE.—The Hon'ble Mr. Yakub Hasan, the writer of the above article, has just published a pamphlet on the *Hindu-Muslim Problem* to which the reader is referred for a more exhaustive treatment of the subject. •

II.

[By T. A. RAMALINGA CHETTY, B.A., B.L., VICE-PRESIDENT,
DISTRICT BOARD, COIMBATORE].

My views are based mainly on my observations of the working of the local bodies in the Coimbatore District and to a small extent on that of the working of the local bodies in the Salem and the Nilgiris Districts. The bases of division into communities are the difference in the social life of the people and that in their interests. When there is no difference in the social life of two castes or where there is no difference in their interests, a member of one of the castes has the knowledge and capacity necessary to represent both the castes. If this principle is adopted, there are only five separate communities among the Indians who require separate representation, viz., the Brahmin, the Non-Brahmin Hindu (excluding the depressed classes), the Mahomedan, the Christian and the Panchama (including all depressed classes). The division into separate castes has no significance in this connection. The four-fold caste division into Brahmins, Kshatryas, Vysias and Sudras has no meaning in our Presidency as the people here were never divided into these four castes. The Tamils knew nothing about this fourfold division. The Razu, the Kallar, the Maravar and the Vaniyas are not recognised as superior to the Vellala, even though these castes claim to be Kshatryas and pursued Kshatrya professions in the past. So also it may be said that the Vysia (Komatti) is not considered as superior to the Vellala, even though the Brahmin will classify the Vellala as Sudra. So the only classification that is necessary and reasonable is the one mentioned above—dividing the people into the five communities. It may also be stated that it will be impossible to recognise any further division and arrange a practicable scheme of distribution.

The Mahomedans and the Christians do not form a large population in any rural area and so it is not possible to arrange separate electorates for them. In local boards their

interests are not ordinarily different from those of other communities. Now and then the question of opening a separate school for Mahomedan boys and girls or that of appointing a Hindustani munshi in a secondary school, comes up for consideration before a Board. In these cases so far as I am aware the Mahomedans have had no reason to complain of the decision of the Boards. Still it is necessary that members of these communities should be given opportunity to serve in the Boards. Ordinarily the chances of members of these communities getting into Boards in open competition are very slender. So this can be done only by nominating one or more members of each of these communities, wherever available, to the Taluk Board or District Board. I will have to admit that hitherto these communities have not always had this consideration. There is not a single non-official Christian in any of the local boards in the Coimbatore District. There is not even a single Mahomedan at present in the Coimbatore Taluk Board, even though the Mahomedan community is very well represented in the other Boards in the District. The Panchamas form a large portion of the population. They are scattered over a large area. They are mostly illiterate. There is no feeling of unity among the several groups. It is not possible to form an electorate of these scattered people. There are no men among them who can be put on the Taluk Boards and who can be of use in the deliberations of the Boards. Wherever an intelligent Panchama of decent position can be secured he may be nominated to the local board. I am not aware of the nomination of a single Panchama to any seat in any local body in the Presidency. We have only two communities left, viz., the Brahmin and the non-Brahmin Hindu. It may be said that the Brahmin will be generally in favour of improvements to urban areas where the Brahmins generally live and extending the benefits of secondary education, those who take advantage of this being generally Brahmins; and that the non-Brahmin will generally be in favour of improvements to rural areas, where he lives and his lands lie, and extending the benefits of elementary education which generally

benefits the non-Brahmin classes. On the whole the communities have worked harmoniously hitherto. The Brahmin has been as solicitous about the extension of elementary education, as the non-Brahmin has been about the extension of secondary education. It may be that the Brahmin has not shown much interest in the improvement of village roads, except where it leads to his own village, and in village sanitation. So there is some basis for difference of interests between the two communities. Even though the Brahmin has got a predominance in legislative councils and in public services, it cannot be said that he is equally predominant in the local bodies. I am aware of only one case in the Coimbatore District in which a Brahmin succeeded against a non-Brahmin in open competition for a seat in a Taluk Board. This would support my view that when the area is small, the Brahmin has not got advantage over the non-Brahmin. It is only when the area increases that the influence of the Brahmin increases and that of the non-Brahmin diminishes. Even including the nominations, the Brahmin does not enjoy any predominance in any of the local bodies in the three districts I know. There is not a single Brahmin in the Nilgiris District Board and none in the Ooty Municipality. There is only one Brahmin in the Coonoor Municipality. In the Coimbatore District Board there are 4 non-official Brahmins. In the Coimbatore Municipal Council there are only 4 Brahmins out of 24 Municipal Councillors. In the Erode Municipal Council there are 2 Brahmins, while the total number of the council is 12. In the Dharapuram Municipal Council consisting of 12, there are 2 Brahmins. In the Tirupur Municipal Council, recently constituted, there is only one Brahmin. In the Udamalpet Municipal Council, also recently constituted, there are only 2 Brahmins. In the Salem District Board there are 6 non-official Brahmins. In the Salem Municipal Council, out of a total strength of 24, only 5 are Brahmins. These figures would show that the non-Brahmins cannot complain that they have not got adequate representation in the local bodies and as I have said the subjects in which there will be

difference of interests are few. While I am of opinion that in the Legislative Councils and in the public services in this presidency, only one community has been predominant, and that unless adequate safeguards are provided, there is very slender chance for other communities, I consider that in local bodies, there is no necessity for providing for separate representation of the several communities. In my view, therefore, separate representation of communities is uncalled for in local bodies. Only, strict injunctions should be given to officials having the power to make the nominations to provide for the representation of Mahomedans, Christians and Panchamas, wherever possible.

The Calcutta Municipal Bill.

THE Calcutta Municipal Bill which was introduced at the last meeting of the Bengal Legislative Council has been published for general information, and in view of similar legislation which is pending here, it may be of interest to deal briefly with its leading principles.

We notice that in drafting the Bill, the prevailing fashion of modern legislation—*viz.*, to place in the body of the Act the broad general rules or statements of principles, and to relegate all details to schedules and statutory orders—has been observed.

The main change introduced in the Bill is the adoption of the Bombay system of a Commissioner in whom all executive authority is vested. As in Bombay, the Commissioner will be appointed by the Local Government and will have the right of attending all meetings and of taking part in the discussions, but will not be entitled to vote on any question. The Municipal Councillors will elect from among their own number a President whose duties will be limited to presiding at the Corporation meetings.

The constitution of the Corporation is proposed to be modified in certain important respects. The number of council-

lors is to be raised from fifty to seventy-five, thirty-seven to be elected by wards, nine by Muhammadans, seventeen by special bodies and twelve to be nominated by Government. We do not quarrel with the proportion reserved for Government nomination but we doubt whether there is any strong justification for the introduction of the principle of a separate electorate for the Muhammadan Community—notwithstanding the special plea urged by the Hon'ble Mr. Yakub Hasan*. It may be conceded that under the present arrangement this community does not succeed in obtaining its due share of representation, but it has not been proved that no other measures were possible, which would rectify this defect. For one thing, we notice that the proportion of Muhammadan voters to the entire population is only four per cent. This in a large city like Calcutta is exceedingly low and points to the need for broadening the franchise. It is possible that by lowering the high property and other qualifications prescribed for voters, the voting strength not only of the Muhammadan Community but of other minorities may be capable of being increased. We hope that, in the further stages of the Bill, these and other aspects of the subject will be carefully thrashed out. Granting the need for representing all communities on the council, and granting also that such representation should preferably be by election, the point, however, on which we would lay stress is that separate election should be resorted to only if no other solution is found feasible.

At present, there are three separate co-ordinate authorities, *viz.*, the Chairman, the General Committee and the Corporation, under the existing Act. The General Committee has in recent years come in for much adverse criticism. It is accordingly proposed to abolish this committee, and distribute its functions between the Commissioner and the Corporation—the Corporation laying down the general policy and exercising powers of control and the Commissioner having all the

* *Vide* p. 879.

executive functions. The result of this arrangement will be a large increase in the powers of the Commissioner; appeals are provided for against the more important orders passed by him. There are two Appeal Committees constituted under the Bill. The first is the General Appeals Committee of seven members—not more than four of whom are to be elected councillors. This Committee is to be appointed every year by the Corporation and will hear appeals, where these are allowed by the Bill, except in cases arising out of the application of the Building Rules. For the latter class of appeals, a special tribunal—the Buildings Appeals Committee—is constituted. It will consist of three members who need not be Councillors. One of them will be appointed by the Corporation and the other two by the Local Government. This provision is made to enable experts to be appointed members, as many technical questions frequently arise in the decision of these appeals. The importance of enforcing building regulations strictly in large cities is now universally recognised, and we are afraid that, at present, the tendency of councils and individual members thereof is to relax the rules indiscriminately. The establishment of a committee of experts to supervise the working of the building regulations is an experiment which will no doubt be watched with great interest.

So far then the Bill vests all executive functions in the Commissioner and the controlling functions in the Corporation and it constitutes “Courts of equity between the Commissioner and the rate-payers” to hear appeals. It also embodies provisions for Committees which, in our opinion, are an improvement on the corresponding provisions in the Madras Bill. In Madras, there will be a single Standing Committee exercising administrative powers in various matters and acting as an appellate authority. This Committee is a small body with a more or less rigidly laid down constitution. In the Calcutta Bill, the Corporation is allowed to appoint several Standing Committees and to delegate to them any of their powers,

duties or functions. No Councillor may be a member of more than two standing committees. The object is to associate as many councillors as possible with the ordinary civic administration of the city and to induce individual members to take a special interest in some particular branch or branches of administration. Under this arrangement, most Councillors will have an opportunity of serving on one or two Committees and of acquiring the special knowledge of the particular branches of work placed under their control. This is on the lines of the English Committee system. The Madras arrangement is deficient in two respects—it does not enlist the co-operation of a large number of Councillors in the task of administration, and secondly, it does not favour specialisation and accumulation of experience.

We have briefly dealt with the constitution and administrative machinery and have indicated what we consider to be the weak points in the proposals. There is first the special electorate of the Muhammadan Community, which requires much greater justification than is found in the speech of the Hon'ble member in charge of the Bill. Next, the Corporation has no voice in the nomination of the Commissioner. It should be possible to allow the premier Corporation in the Presidency the power to appoint its Commissioner, subject to qualifications, &c., prescribed by the Local Government and subject to their approval. Lastly, the powers vested in the Commissioner seem to us to be much wider than those given in the Bombay Act or in the Madras Bill. We trust the Bill will be modified in these respects.

We next come to the finance portion of the Bill. No changes of importance have been made here. The consolidated tax of 23% of the annual value, collected in equal shares from the owner and occupier, is retained, and also the other taxes and fees provided for by the existing Act. The tax on professions in Calcutta is less of an income-tax than with us in Madras. The taxation portion in this Bill offers a great contrast to the corresponding portions in the Madras

City Municipal Bill which initiate novel proposals like the increment duty, the sur-tax on the income-tax, &c. The Bill gives complete control over budgets to the Corporation.

The technical portions of the Bill represent a great improvement on the existing Act, and their drafting leave nothing to be desired. The "town planning" sections have been omitted in the Bill, as there is an early prospect of town-planning legislation being undertaken. The question of food adulteration is dealt with in a comprehensive chapter. The schedules contain building regulations, rules as to private connections and meters, rules as to drains, rules as to the use of building sites, etc., which are models of brevity and clearness.

On the whole, except as regards the constitution of the Corporation, which we trust, will be liberalised before the Bill becomes law, the Bill before us is a careful piece of work on which the Government of Bengal deserves to be congratulated.

Reinforced Concrete in South Canara.*

[BY RAI SAHIB K. KRISHNAN NAYAR,
LOCAL FUND ENGINEER, MALABAR.]

THE difficulties in communications on the West Coast due to the excessive rainfall and the numerous streams and back waters were tided over for a time by the construction of cheap bridges of laterite and timber at a time when roads were few, labour cheap and the forests not yet exploited. Extracts from official reports are given to show, first, that the authorities recognised that there was little use of building such bridges useful for only a short time and demanding a large recurring expenditure at frequent intervals, too often when no funds could be found, and that whatever was done was worth doing well. Later on, the same authorities strongly called in question "the recent

* A paper read before the Madras Local and Municipal Engineers' Association. Revised for the *L. S. G. Gazette*. Paragraphs summarised are noted in the margin.

policy of erecting a few expensive iron girder bridges instead of many cheap timber ones, reminding one

“How the course of time will swerve
Crook and turn upon itself in many a backward streaming curve.”

Mr. H. M. (afterwards Sir Henry) Winterbotham wrote in 1886 :—

“Until some material more durable than timber and less costly than iron or masonry be discovered, it seems as if the Board could never hope to maintain the host of existing falling and fallen bridges, each one of which at one time or another has been considered indispensably necessary to erect.”

5. The extracts put together disclose a yearning for some material that is more durable than laterite and timber and cheaper and more satisfactory than iron. We know of no material at present that answers this description better than reinforced concrete. I well remember how Col. Love first explained to me the principles underlying the use of this combination of materials and how it had a great future before it. At that time he knew of no books in English published on the subject, at any rate in England. Now there are numberless books and the cry is, still they come. In a few words, Col. Love explained to me how steel reinforces the concrete in its weakest part, how the cheaper material helps by its mass and protects the steel from rust and how on account of the variations in temperature affecting both equally, there was no complication in this “coalition” of two such widely varying materials. These words I have repeated with great effect to many, both in and out of the profession. To make the explanation clear to the latter, I had only to take a ripe plantain or a twig and bend it to show how the outer fibres stretched and broke and how those on the innerside got jammed up. The reduction of recurring charges on maintenance is the greatest advantage and on this account reinforced concrete may be considered a permanent work. In using the word permanent, no note is taken of eternity, as was made

clear in a paper read some time ago by a quotation from Cowper :

“ We build with what we deem eternal rock
A distant age asks where the fabric stood
And in the dust, sifted and searched in vain,
The undiscoverable secret sleeps.”

6. I pursued my study of the subject encouraged by one of the Presidents who told me “I would see you try something and fail. That, at least, will show there is life”. The same kind of encouragement could not be expected from others, some of whom said we wanted to experiment, and they thought we had done with experiments in the College. It was useless to tell them that reinforced concrete had itself passed the experimental stage, that the experiment was for the individual and could not be avoided and that its future did not depend on any individual failure, no more than a child falling when first learning to walk can imperil the prospect of that most dangerous of all feats being continued. I was reminded of all this, when six years ago, even the matter-of-fact Mr. Asquith declared publicly “I would rather see doubtful and even perilous experiments tried than the cynical or timorous lethargy which prefers to leave things alone.”

7. While in Malabar the timber decks were frequently developing holes and even Government officers were suing or threatening to sue for damages on account of the valuable horses they had lost and the Presidents had recognised the impossibility of the limited staff of the Engineering Department coping with the evil and had ordered the village officials to attend to the holes as soon they appeared, these decks in the sister district of South Canara were being replaced on the main road by steel ones. An Engineer caught in the “backward streaming curve” in Malabar already referred to, went over to South Canara and soon multiplied the timber decks there. There were a few culverts of masonry with granite slabs. Almost all the rest were what were called “brushwood culverts”. Logs of wood spanned them and twigs and leaves were placed across to receive the road ballast. Some of them required attention

once every year, others once in two years. I remember one road in which half the allotment for maintenance was swallowed up by this kind of work. Yet it was difficult to go one mile without seeing some culvert having dangerous holes in it. The brushwood culverts received either granite slabs or reinforced concrete slabs and the timber decks of bridges were also replaced by the latter. In two years after laying the first slab, it was reckoned that half a mile of reinforced concrete slab was laid in the district. When the first slab was laid, a note was written stating in detail how it was actually done and how the mistakes made could be avoided. Every overseer had a copy of this note, was allowed to see a slab laid and was then made to lay a slab himself in the presence of a superior officer. Two or three maistries became experts and these were sent in succession to different parts of the district.

8. In laying the slab, we closely adhered to Col. Ellis' note embodied in the Chief Engineer's Circular No. 2916-C of 6th May 1905, the only notable difference was in bending the alternate rods over supports; the bending commencing a fourth of the span distance from the support. A further alteration was secured by the bending commencing alternately 6" closer to, and 6" further from, the support. Later on, it was arranged that every rod had some bend over one support or another. All these variations produce considerable advantage and can be secured by having not more than two templets for bending the rods. The positions of the rods have only to be reversed alternately to secure them. A cooly of average intelligence could be more easily taught to do the bending than a blacksmith who was too fond of using his hammer. The templet is placed on level ground and pegs are driven to guide the bend or the form required is marked on a plank and small rods are inserted into the plank at the places required. Kennedy's bar-bender has been also used on some large works and the maistry who used this always asks for it wherever he is sent.

One incident is worth mention here. In releasing the timber platform or mould, no account was taken of the wild

elephants in the vicinity who were, fortunately for us, quite capable of taking care of themselves. One of these elephants placed one foot on the slab, tested it and, finding it wanting, withdrew its foot and retraced its steps. When the concrete is fully set, the elephants go over these slabs, though these have not been designed to carry an elephant. They were not going over the old culverts.

The bulk of the work done in South Canara was in slabs generally cast *in situ*. Some were cast beforehand if the traffic could not be long interrupted and a suitable diversion could not be found. The bottom of the slabs can be made in the form of a hollow arch saving a considerable amount of concrete and resulting in great convenience in handling and hoisting (Plate 3). Holes may be left in the vertical sides through which small rods can be passed and cemented to ensure an even distribution of concentrated loads. For spans above 12 feet, T. beams were used. For 30 feet spans, rolled joists were found cheaper. These were covered with 1 to 1½ inches of cement plaster reinforced with hy-rib or wire-netting.

The railings of many of these bridges are of R. C. ornamental panels 1½" thick. These were cast in advance with cast iron moulds and in lengths of 5 feet. Two of them being kept in position, the projecting reinforcements at their junction are tied together and a pillar, plain or ornamental, 6" square, is then cast, the main reinforcing bars of which were already tied to those of the slab.

14. By far the cheapest permanent support for these decks is afforded by R. C. piles, two or more for each trestle being braced together. In submitting the estimates of the Pangal bridge, the first of this kind, the cost of other types was taken out. A bridge on steel screw piles over a similar stream was just then completed and the cost of a similar one would have been Rs. 4,000 more and would not be quite so satisfactory. Already the steel pile was found to wear away between high and low tide levels. This wearing

Plate 2
4 FT R.C. TUBE (Flat top)
Scale $\frac{3}{8}'' = 1'$

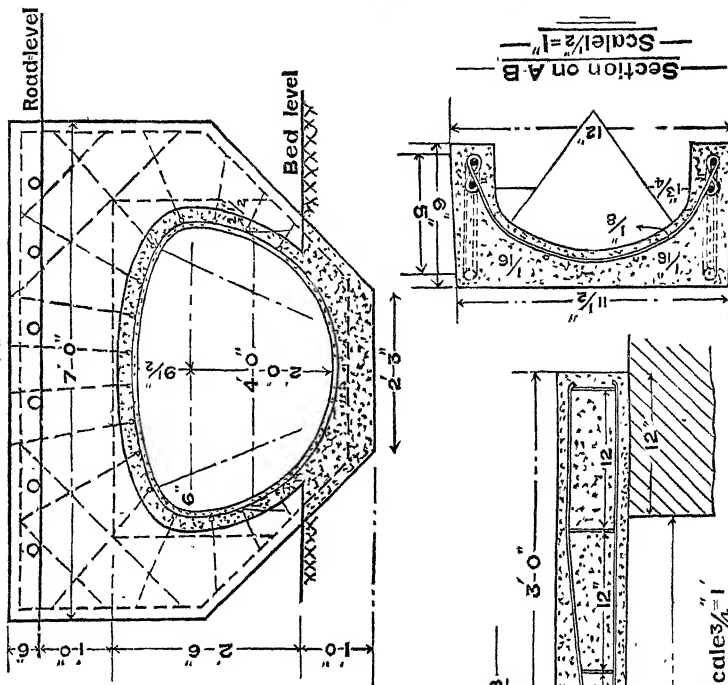


Plate 1
R.C. TUBE 6 FT diameter
Scale 1" = 4'

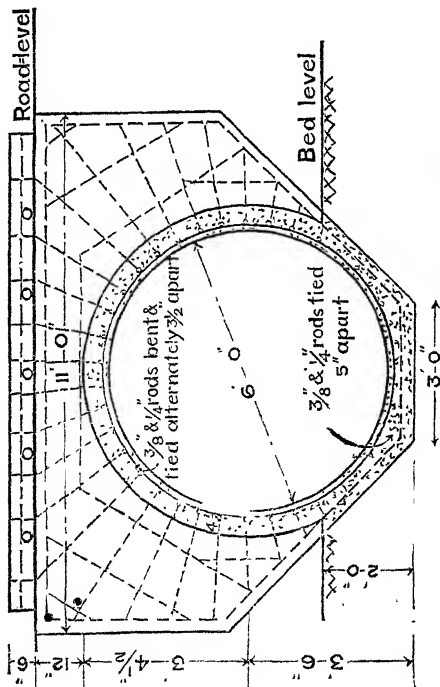
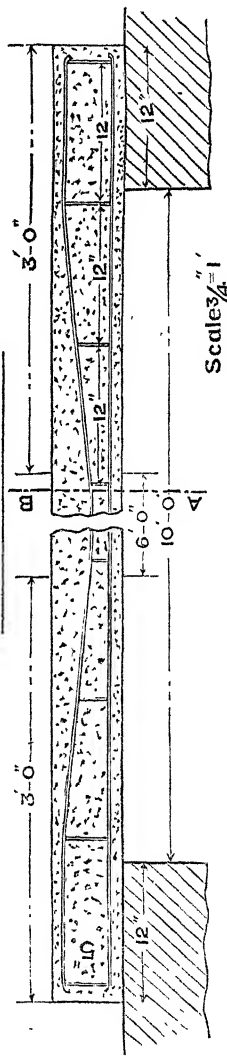


Plate 3
R.C. HOLLOW ARCHED SLAB



REINFORCED CONCRETE IN SOUTH CANADA.

Plate 4

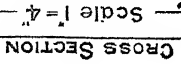
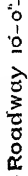


Plate 5



away has been arrested by encasing the affected portion in cement plaster reinforced with vertical rods and wire-netting. But still no one can say what is going on inside the plaster. Besides, the tarring or painting of the bridge is a considerable item. Granite masonry piers would have required well-foundations and the estimated cost was considerably more than that of even the screw pile bridge and the actuals might have proved to be still more, as is generally the case with well-foundations. (Plate 5.)

15. Another special feature of the Pangal bridge which it has in common with many other bridges in South Canara is the dispensing with of the costly abutments and wings. There was at one time generally an idea—which perhaps has not still died out—that wings need not be so thick as the abutments. Both receive the same earth-pressure which is practically what determines their thickness. The abutments have two ends fixed and supported by the wings, while the wings have one end free and they in addition receive the weight of the deck to partially counteract the earth pressure. All this was ignored to such an extent that few old bridges can be found without cracks and it is easy to see where the cracks are and why they should be there. There is neither abutment nor wing for the Pangal bridge. An additional land span is placed at the two ends supported just in the same way as the other spans and the earthen bank of the stream and the higher bank of the approaches are merely revetted. This system admits of the water-way being extended without having to dismantle costly abutments and wings.

16. Except where rocky foundations can be met with at or very near bed level, or where boulders abound for a considerable depth, the use of reinforced concrete piles will considerably cheapen the construction of our road bridges. (Even in the case of a rocky bed there is no reason why R. C. columns should not be cast in position with a wide R. C. slab for a supporting base.) If further precaution is required or the pile has to be driven deeper than it can be with the avail-

able plant, a caisson can first be sunk of reinforced concrete 4" thick and 4' square. (Plate 4). The rectangular form is adopted for facility of making the mould. When the caisson is sunk as deep as is required, the pile can be driven in the centre. A bottom plug of concrete can be laid as thin as one foot through a tube. Above summer level, the tops of these are connected by an R. C. slab through which the pile head pierces and to which it is connected. The remaining heights of the piles are then cast in position with the bracings.

17. The piles for the land span are frequently away from the natural bank of the stream. In this case they have not got to be driven very deep, particularly as a high embankment has to be formed around them. A round hole is in this case bored with a digger; a little concrete is first let down; then the reinforcements are placed in the hole and the concreting proceeds.

18. Sometimes it is desirable to give a good foot-hold for the revetments. This was done in Panemangalore by driving in R. C. piles 9" square 10' apart. An R. C. arch 6" thick was cast from pile to pile and from this the revetment was started.

19. The retaining wall designed and described on pages 162-181 of Marsh and Dunn's Manual of Reinforced Concrete suggested a type of culverts which were designed and executed by Mr. Duraiswami Ayyar. This design gives ample exercises for various kinds of calculation. The cost is the same as for granite masonry but it was thought that if permanent moulds were made for a standard type of abutment, culverts could be built in all parts of the district without having to import the most troublesome labourer, the granite mason. Later on, however, the construction of R. C. pipe culverts of varying diameters was found to be much cheaper and suited to all kinds of soils without losing in the least degree the advantage of a monolithic construction. (Plate 1). These culverts were found particularly suitable for doing away with open drains. The lower portion of the pipe is half buried in

the soil and the upper portion can be flattened if it is thought necessary to avoid the road being too high over the culvert. (Plate 2). If the headway was on the other hand great, the flattening can be at the sides.

20. An instance of an experiment which might be considered perilous is afforded by a sea wall constructed as a trial at Thrase, 5 miles north of Kundapur. Here the river which falls 5 miles lower down into the sea is separated by a narrow sandy belt only wide enough for a road. This belt is from time to time washed away and the road is not re-made if funds do not permit. With this break, the road itself, though important, fell into disuse. The road was re-made in 1906 with the recurring grant. It was always feared that if the river opened into the sea here, the Kundapur town would be ruined. With some annual expenditure this belt was kept up for some years. In 1914, it was felt that something should be done; stone quarries were far away; large boulders would be required and the quantity would be considerable for any kind of ordinary protective work and the cost prohibitive for the Board. Rs. 2,500 was placed at my disposal for a trial with a thin reinforced concrete wall. The middle portion, where the action of the waves was severest, was taken and divided into 14 bays of 15' each. The retaining wall was 15' high with a slope of 2 vertical to 1 horizontal. For the base of each bay a segmental arch form was adopted. Where two bays met, a triangular R. C. rib was placed. The pressure on the ribs was distributed on the bed by means of R. C. inverts 7'-6" broad (or the same breadth as the base of the rib). The concrete was 4" thick only. Only 10 bays were finished before the monsoon of 1915 which proved to be one of the severest. The R. C. work stood firm but the rest of the road not so protected was washed away by the sea. The popular belief to which even our Overseer fell a victim and which was shared by a Government Gazetted Officer was that this was a punishment for having dared to resist the action of the

sea. I understand that this sea wall was continued this year, that the road unprotected suffered again during the stormy season and that it has been decided to complete the protection of the road affected by the waves of the sea.

21. For all the well foundations, reinforced concrete curbs have been used, considerably cheapening their construction and in many cases advancing the works by one season by enabling them to be started as soon as estimates were received sanctioned without having to order and wait for wrought iron casings. Blasting with dynamite and gelatine had to be done under some of them.

22. No large arch of reinforced concrete was done. Often this was thought of and pressed on my notice and the actual designs were also made, but they had to be invariably given up when it was found that other forms of construction were cheaper. The causes that brought about the supplanting of the fine masonry arch bridges of old by structures having flat tops for their openings must militate to some extent against the use of R. C. arches—the necessity of having some rise for the arches and the consequent costly approaches. Where the stresses are principally compressive, much advantage cannot be claimed for the use of reinforced concrete. In a recent American publication I find it stated that no large economy can be obtained through the use of reinforced concrete in arches. In fact it is the only type of construction for which this advantage is not claimed.

23. In a district where excellent tiles are manufactured and laterite stones abound, there was no need for any extended use of reinforced concrete in buildings. Thin partition walls sometimes required its use. For a Magazine shed at Panemangalore a roof reinforced with hy-rib has been made more for the purpose of seeing what effect successive seasons have upon it. For access to the upper floor R. C. slabs were inserted in the wall as it proceeded. For the District Board Engineer's Office, the stair-cases are on the same principle. The floor slabs would have been more costly than jack-arches.

of brick and so were used only in two places. The compound wall on two prominent sides and the railings for the verandah have reinforced concrete panels made out of the cast iron moulds already referred to. Fence and railing posts, mile and furlong posts, sign-posts, stands for wash-hand basins, girder-bed-stones, ornamental coping stones, pillars, brackets and finials are some among the minor uses to which reinforced concrete readily lent itself. Where wells with masonry steining had run dry, an inner well was dug with R.C. tubes of varying diameters for the steining. The thickness was only $1\frac{1}{2}$ ". These were cast in advance in 2' lengths and in three or four pieces for each length for the larger diameters.

24. A trial has also been made of a reinforced concrete road over a bridge which has stood the test of the traffic and the varying temperatures very well for three years. The road slab was laid over the deck of the bridge. The reinforcement for this was laid $1\frac{1}{2}$ " below the surface and the expansion joints were made in varying ways. On account of the general belief that exposed concrete work in this climate is likely to crack no extended trial could be made.

25. Before concluding, I wish to say something about the opposition reinforced concrete has met with in this country from those who have not made any use of it. There is nothing new under the sun; the principle of reinforcing was known to the Romans. Quite half a century earlier than in America and England, reinforced concrete had come to be largely used on the Continent. If we have now in this country but a feeble imitation of this work, we have also only an equally feeble opposition to its use. Much stronger and more interested opposition in England, though successful for a time, is dying a natural death in the face of stern facts. "The peculiar circumstances obtaining in this country"—the last resort of those who oppose all changes—have also been advanced; but as Chief Engineer, Mr. F. J. Wilson, expressed it, there is really no reason why Engineers should fight shy of reinforced concrete. One of the argu-

ments against its use is the supervision the work requires. To my mind there is no work that I can think of in which supervision can be so effectively exercised. Every stone, every batch of mortar mixed, every course of masonry requires reliable supervision. Four dozen screws have to be driven for fitting in the shutters of an ordinary window. Supervision is required to see that the holes are not drilled too wide and then filled in with saw dust or wax. Every joint in timber requires to be watched when joined. Even in spite of the greatest care we find, on spreading metal heaps, that they were not always within, what they professed to be outside. Reliable supervision is required for every work at every stage. The successful executive officers have only learned how much and whom to take on trust and the contractors in their own interests have learned the irreducible minimum of good work they have to put in. In this way supervision is generally dispensed with, often without any disastrous results. In the case of reinforced concrete, an officer so inclined need not take any such chances. He can examine the mould, pass the grill and see the concrete laid, all in one day—let others take as long as they want to get all things ready in advance. Much as I wish it, I cannot pass in silence over the excuse given by some that with the subordinates they had they would not embark on such enterprises. I cannot help making the suggestion that if they did one work under their own supervision once a month there would soon be, all over the district, works which their poor ignorant subordinates could study and imitate.

26. To illustrate my meaning I shall refer to a singular experience we had. A culvert on the borders of the district had a reinforced concrete deck put on it. Within a month of the Overseer laying the concrete foundations, the contractor rushed through the masonry work knowing the Overseer to be busily engaged elsewhere and the Engineer to be in another remote corner of the district. The Overseer came only to lay the deck; when the deck was three weeks

old, the freshes came with the rains and carried away one abutment. I saw the deck with ornamental R. C. parapets reposing intact, one end on the remaining abutment and the other on the stream bed. With the wisdom that easily comes after the event, we were able to predict the fall of the remaining abutment. The mortar used inside was poor; the stones were very small and, worst of all, there were no bond stones. When, in due course, our prophecy was fulfilled, I again saw the deck intact lying wholly over the stream bed. Every part of the work required efficient supervision. It was easy to give this supervision to the R. C. work.

27. With the facility for reliable and efficient supervision, with the ease and rapidity of construction, with its capacity for being moulded in parts, and at different times and in all sorts of shapes, with its durability and, last but not least, with the economy in its use, reinforced concrete has really a great future before it. As its use extends and we get less timid, the economy will be greater than it is now. Theorists at every stage of their calculation halt a little "to be on the safe side," reminding one of the old story of a person who had to pass 64 gates and had to part with a percentage of what he had at every gate. In this country the work is so little understood that the Chief Engineer has wisely fixed that $\frac{3}{4}$ of the strength admitted elsewhere should alone be reckoned on here. The amount of timber wasted by theorists trying to be on the safe side was recognised only after the safe use of much weaker timber scantlings in private buildings. Col. Ellis remarked in the case of calculations for timber scantlings: "Did wind pressure on roofs act as computed, half the roofs in India would not stand a year without serious injury." So, in the case of reinforced concrete, a more extended use of it will lead to a bolder or rather a less timid use of it and bring about still greater economy in its use than is thought possible at the present day.

The Practical Application of Modern Sanitation.

[BY F. G. HOLMES, GLASGOW.*]

WHEN we consider the great progress that has been made in sanitation during recent years the question naturally arises, Are we deriving full benefit from our greater knowledge of the subject? Does the squalor which existed in many of the poorer localities of our towns years ago still exist, and, if so, why should it be permitted to do so? That the squalor still exists is only too true, and therefore we might profitably consider how our increased knowledge can be put to practical use so that every one may be enabled to lead healthier and happier lives in the future than in many cases have been led in the past.

In speaking of sanitation I mean it to be understood in its broadest sense, so that we may keep in view the desirability of doing everything possible, not only to improve the sanitary conditions of our towns and villages, but also materially to improve the health of the people. No doubt in time we will attain a higher standard of sanitation, but the present rate of progress is, in my opinion, too slow, and should be accelerated, and that can only be done by inducing every one to take an active interest in the subject, and thereby make the personal element in sanitation a living force. That the personal element is entirely wanting I do not for a moment suggest, because the majority of people by their habits and mode of life actively assist in the cause of sanitation, but, on the other hand, a considerable minority do not. It may be from no fault of their own, but, be that as it may, these are the people we should endeavour to enlist in the good work, so that by personal effort they also will assist in improving the present conditions of life.

Social Conditions.

Education in sanitation alone will not be sufficient to enable us to lead more healthy lives than at present, and

* Extracts from Presidential Address to the Incorporated Sanitary Association of Scotland.

therefore the social condition of the people must be taken into account, as it has a very important bearing on the subject. Much of that, however, is beyond the powers of our local authorities, but their influence is great, and if properly used in the right direction would be very valuable in assisting to obtain the desired result.

Housing and Sanitation.

Housing of the working classes is a subject which has been engaging the attention of local authorities and social reformers for many years. It may be readily admitted that without proper housing accommodation we cannot expect perfect sanitation, but, on the other hand, proper housing alone will not ensure perfect, or anything like perfect, sanitation, but it is a most important factor in the subject, and requires immediate attention. Much has been written and discussed about proper housing, and naturally there are differences of opinion on points of detail, but one point on which we may all be agreed is that the standard of the present housing of the working classes requires to be raised.

The chief essential requirements of good housing are that they should have sufficient accommodation for the number of people they are to accommodate; they should have ample open space in front of every living room, whether at the back, front, or sides of the house; the walls and damp courses should be sufficiently substantial and durable; they should have a plentiful hot and cold water supply; there should be ample lavatory accommodation, including a bath in every house; and the drainage arrangements should be as nearly perfect as possible, both in workmanship and materials.

One can understand how in villages and small coast and country towns not having gravitation water supplies the houses are not fitted up with proper sanitary conveniences, but where there is an ample water supply the want of such conveniences in new houses is altogether inexcusable. The day has long passed when one external water-closet should be permitted for the use of two or three different families, and

the sooner that sanitary defect is remedied the better for the health of the community. It may not in all cases be possible to remedy this defect in existing houses at present, but certainly the defect should be avoided in the erection of new houses.

Tenement Houses.

Considerable differences of opinion exist as to whether or not tenement houses should be permitted, and those who denounce the tenement houses are strongly of opinion that self-contained houses should prevail either as villas or terrace houses. In passing through the thickly populated districts of our industrial towns, where we see high, grimy, unattractive tenements of houses, we cannot wonder at the objections raised against tenements; but is that sufficient justification for the wholesale condemnation of them? A house need not be unhealthy because it is within a tenement; it may be far more healthy than many a self-contained house, and one has only to visit and inspect the more modern tenements which have been erected in residential districts of many of our towns, with wide streets in front and extensive background, to discover the fallacy which gives wholesale condemnation to tenement houses. There is a great deal to be said for and against them, and, assuming that they and self-contained houses are built under equally good public health conditions, it becomes a matter of individual choice whether one elects to live in the one or the other, so therefore public demand might safely be left to decide the matter, with the probable result that both will be required.

It might be desirable, however, to limit the height of tenements to a maximum of three storeys, as has been done in some districts of various towns, and oriel windows should be adopted on the front wall of all upper floors where the front wall of the tenement forms the side of the streets, which would not cause any street obstruction, but would break the monotony of a plain front, and admit as much sun as possible into some of the rooms, more particularly where

the tenements have a northern or western exposure. Where there is a parterre in front of the tenements oriel windows should also be required on the ground floor.

Another aversion of some people is the one-roomed house, because of the idea that it is unhealthy. As a general principle, no sensible person will live in a one-roomed house if he can afford a larger one, but the persons to consider are those who cannot afford the rent of a larger house. If one-roomed houses are built and occupied to comply with the same public healthy conditions as the larger houses, and are provided with a scullery, lavatory accommodation, bath, and hot and cold water supply, what possible objection can there be to them? Better that elderly couples, widows, or one or two maiden ladies, with limited incomes, should live in such houses than be compelled to deny themselves sufficient food and clothing merely that they may live in larger houses with no compensating benefit therefrom.

To avoid monotony, the stereotyping of the design of houses should be avoided, and if architects and their clients get a free hand, subjects to the Police Acts and by-laws, better and more satisfactory results will be obtained.

To raise the standard of our housing in the manner indicated will no doubt make them more costly, but, on the other hand, if the health of the people is correspondingly improved the money will be well spent.

Suggestions have been made as to how the cost of houses may be reduced, and if that can be done judiciously without making them less healthy, by all means let us have the cheaper houses.

With the improved housing of the future it may be asked what is to become of the present houses, many of which are comparatively modern? And the answer to that is: We must make a beginning with the new housing, and in all probability many of the present houses may be altered to comply as nearly as possible with the new requirements, and,

in any case, with tenants educated up to assist in improving sanitation, the houses may be kept in a cleaner and healthier condition in the future than they were in the past, and after they have served their day and generation they will make way for a higher standard of housing.

Open Spaces.

Too much importance cannot be attached to the necessity of ample provision being made for the people to spend a large proportion of their spare time in the open air amid attractive surroundings, and that for long has been realised, and to a large extent provided for, by our local authorities. The principal requirements for outdoor recreation, some of which are already provided in several of our towns, are as follows, viz :—

(1) Public parks well laid out in suitable localities with trees, shrubs, flowers, and an ample supply of seating accommodation.

(2) Open spaces laid out in grass, with trees, shrubs, and ample seating accommodation, where people may spend some little time to advantage when they are not inclined to journey further to the public parks. Obviously in the built-upon portions of our towns it may not be possible to secure many of these open spaces, but where ground is available they should be provided, because not only are they valuable for the purpose for which they are intended, but they assist materially in making districts more attractive in appearance. In all town planning schemes the necessity for such open spaces should not be overlooked, and at the same time by providing for wide roads part of the width could be laid out in grass margins, with trees and shrubs. Seating accommodation could, with benefit to the people, be provided on the grass margins from time to time as required.

(3) Playing fields for cricket, football, and tennis.

(4) Public golf courses.

(5) Public bowling greens, with ample seating accommodation for people not engaged in the game.

(6) Garden plots or allotments

(7) Skating and curling ponds, and the former could be used for rowing at suitable times, provided sufficient revenue could be obtained to warrant the providing of boats.

Indoor Recreation.

For indoor recreation a sufficient number of swimming baths, provided with the usual slipper and shower baths, are most desirable, and probably they might be made to clear expenses if they also had reading and recreation rooms and a gymnasium, under the control of a properly qualified instructor, attached to them, so as to encourage young men to use them frequently as a club in their spare time, for which reasonable charges would be made for daily, weekly, monthly, or annual tickets as might be desired. It may be said that an extended use of public baths might be a serious drain on the water supply, but that difficulty could be got over by regular filtration of the water, as is not unusual in several baths now.

In addition to the principal public halls and libraries, district libraries, and small, inexpensive halls for debating, literary, and other societies might with advantage be provided in suitable districts of our towns and counties

It may be said that to provide facilities to the extent indicated for the purpose of raising the standard of public health is somewhat visionary, but with that I do not agree, because recreation is good both for mind and body, so therefore in my opinion it is an absolute necessity, and surely it is better that our young men and women should spend their spare time to the best advantage rather than wander aimlessly about the streets with no other end in view but to kill time. Not only is it necessary to provide the facilities, but it is also necessary to educate our young people up to the desirability of taking full advantage of them, and I am strongly of opinion that the want of such facilities is largely to blame for the creation of the so-called "hooligans," who are nothing more or less than the product of misdirected energy, which if applied under proper guidance would make these young men useful and creditable members of society.

A Cholera Epidemic in Kanazawa Prefecture, and Preventive Measures.

[BY DR. T. KITANO.]

INDIA has long been known as the fountain head of all epidemics; as the old proverb says, "there is no time that cholera ceases to appear in the Delta of the Ganges." Plague, cholera and other epidemics are every year depriving India of thousands of human lives. This is a source of great concern to us, who are in constant communication with India.

Not long after the commencement of the Great European War, there was an outbreak of cholera in the several Military Hospitals of Austria-Hungary, and there were 18,000 attacks in that year. Next year, the epidemic spread to other parts including Germany, Russia, Siam, Indo-China, and India and the number rose to 27,000 cases. Under these circumstances, we, the Japanese, felt our position insecure against the ravages of this dire disease and accordingly urged on the sanitary authorities the necessity of guarding our coasts and coast towns from ships coming from infected ports.

As we feared, the first case of cholera appeared on the 27th of July on board the S. S. *Hawaii Maru* of O. S. S. Company in a female who came from Wakayama *via* Kobe on route to the United States. She felt sick that morning and consulted a doctor in the city, as the surgeon on board was out. The next morning she grew worse and reported herself to the Harbour Physician who suspected her to be suffering from cholera. She was removed to the Isolation Hospital where bacteriological examination of her discharge was made. The diagnosis of cholera was confirmed. Thereupon the ship was ordered to be brought out to Nagahama for disinfection. During the period of quarantine while she stayed in the harbour, there were 44 cases of cholera with 10 deaths and 3 germ carriers. So special precautions were taken on the coast, harbour, and so forth in the vicinity. In spite of

this, on the 11th of August, a case of cholera—an indigenous case—occurred in the city. On investigation, it was found that a few days before she fell, she ate a crab-octopus and other little fish sold by fishermen who were anchoring in the vicinity of the harbour.

The second case occurred at Hodogaya near the city. The patient belonged to a family of restaurant keepers who used to buy fish from a provision market of Minato-cho.

The third case occurred at Kusaka, a village near the city. It was discovered that the patient had a few days before his illness been to Kanazawa and there ate some fish served at a feast. At that time there were more than ten fishing boats from the opposite coast, *i.e.*, Funabashi-Machi, Chibar Prefecture, which anchored under the garden bridge and fished on water off the coast of Hommoku or Kanazawa. A part of the catch was brought into the provision market of Minato-cho already referred to and the rest were sold by the fishermen in boats.

In view of the fact that the cause of their falling ill was due to the consumption of fish caught off Hommoku or Kanazawa, we came to the conclusion that the water off their shores was infected, the primary source being the *S. S. Hawaii Maru*.

We can now assert that the germ carriers last year as well as in the previous year were ships coming from foreign infected ports. In view of this, the prefectural authority issued strict orders prohibiting bathing and fishing in the sea within one knot from the coast.

As to Yokosuka District, the first case (a female) appeared on August 22nd in a small town called Taura. She ate fish sold by a fisherman who was fishing on the sea off Kanazawa and Taura and was always using the water of his well. The next day at Hemmi, Yokosuka, a sailor of a boat was attacked by the same disease. He had a friend—a labourer who lived in the same tenement with the first victim. In all, there

occurred more than 50 cases at this block and the cause of the outbreak seemed to be due to three conditions, most probably:—

1. The sloping foundation of the block.
2. The virus brought into wells and rivers by rain water percolating through the sub-soil from the first infected well.
3. The consumption of milk from infected sources.

We immediately intercepted the whole block, consisting of 422 houses with a population of 1,700, prohibited the use of water in wells and rivers of that locality and supplied them with boiled water at the rate of 4 gallons per head per day. We subsequently proceeded to inoculate all the inhabitants with sensitised cholera vaccine as a preventive measure. The epidemic at last came to an end on the 29th of September 1917.

As Yokosuka is an important naval station, if the preventive measures had been miscarried, the result would have been disastrous in view of the Imperial naval action; hence the anxiety on the part of the authorities.

Cholera Vaccine.

The normal vaccine we hesitated to use, fearing strong re-action.

In June last year, Dr. Sukegawa, a Prefectural Health Officer, had after careful experiments on animals and human bodies, succeeded in producing a sensitised cholera vaccine which was efficient—producing no re-action. This sensitised vaccine has 2 milligrams of bacillary substance in 1 centigram of the emulsion, and one injection of it was enough to produce immunity for a certain period.

We began injecting this vaccine in affected places, more than 100,000 people having been inoculated within a period of about two months. The results achieved were highly satisfactory and established the value of the vaccine.

In view of the widespread prevalence of cholera, and the geographical situation of our country, we stand in constant peril of the infection. We hope the authorities will

soon enact a law making the inoculation of sensitised cholera vaccine against cholera compulsory, as in the case of vaccination against small-pox.

My proposals in this respect are as follows :—

1. All passengers who land or enter the port from cholera infected localities must be inoculated with cholera vaccine prior to their embarkation—as the U.S.A. do in the case of small-pox under the Quarantine and Emigration Act with respect to ships coming from the Oriental countries.

2. Government should order all Japanese Consuls abroad to refuse certificates of health to ships coming from infected localities unless all the passengers of the ship have been previously inoculated with cholera vaccine.

3. Government should order all shipping companies to make provision for the throwing of discharges on board, outside the territorial waters, when they come from places where cholera prevails.

4. When cholera breaks out or has a tendency to break out in any place, the authorities concerned should compel all the inhabitants of the place to undergo preventive inoculation against cholera.

Sanitary Administration (Bombay).

THE Sanitary Commissioner has submitted his Report on the condition of public health during the year 1916. Unfortunately the marked decrease in the mortality of the presidency noticed in the preceding year was not maintained, the figures being higher than in any year of the decennium, with the exception of the year 1912, when the presidency was swept with one of the severest epidemics of cholera that it has experienced within recent years. Cholera, small-pox, plague and malaria all claimed a larger number of victims than in the previous year. For this the heavy precipitation of rain in the months of October and November in the southern part of the presidency with its attendant distress among the poorer classes, was partly responsible, especially in the wider prevalence of malarial fever.

For the second year in succession there was a diminution in the birth rate. For this decrease no explanation is forthcoming. A comparison between the birth rates in urban and rural areas indicates, as usual, the serious defects in the system of registration in many municipal towns. A considerable divergence is to be expected in rural areas where the density of population varies widely. But in urban areas registration is a much simpler matter and it is therefore disappointing to find obviously deficient rates recorded in many municipal districts. A detailed report on the subject, explaining the reasons for the failure of its registration system and indicating what steps it proposes to take for a substantial improvement in the near future is being called for.

Unlike the birth rate, the death rate in rural areas is markedly less than that in urban areas, but this does not necessarily point to a more efficient system of registration. It is attributed by the Sanitary Commissioner rather to the low standard of sanitary administration obtaining in the large municipal towns, in some of which the recorded death rate is more than double that for the whole presidency, the high water mark being reached in Malegaon with a death rate of 119·08. The great need of many of the large municipal towns in this presidency, as elsewhere, is the awakening of a sanitary conscience.

The infantile mortality in the City of Bombay, which had during the previous three years shown a downward tendency, rose in 1916 from 330 to 388 per 1,000 births, although still well below the figures for earlier years. There was no diminution in the percentage of confinements attended by unskilled women, but a most welcome decrease in the number of totally unattended births, while there was another increase in the proportion of births occurring in hospitals, testifying to the great value of the work undertaken by the Sanitary Association and the Lady Willingdon Scheme. The comparative figures of infantile mortality occurring at different periods of infant life given by the Sanitary Commissioner for Bombay City and four districts in the Southern Registration District illustrate the incalculable benefit of providing skilled attention for confinement cases and emphasise the great importance of carrying into the most full the work that is now being performed in the City of Bombay.

There was a severe recrudescence of cholera during the year under review, only one district in the presidency and two in Sind escaping a visitation of the scourge. As is usually the case, the pilgrim traffic was mainly responsible for the dissemination of infection, but careful investigations carried out in some of the infected areas threw considerable light upon other methods of transmitting the epidemic from place to place and proved how active a part is played by water in carrying infection. The case of Charoli Budruk, quoted by the Sanitary Commissioner, in which persons drawing water from an upstream ghat were entirely free from cholera, while those using two downstream ghats below a fourth ghat, where cholera-soiled garments were proved to have been washed, were seriously affected, is one to which particular attention should be drawn as illustrating the importance of simple common sense precautions. The necessity of impressing upon the villager the paramount importance of taking steps to prevent the pollution of river water when cholera is rife cannot be over-emphasised.

The theory suggested by Colonel Hutchinson in his report for 1915 that plague moves in a cycle of four years, of which the first year is the most severe, has unfortunately not been borne out by the experience of 1916, as the mortality from plague rose from 43, 824 in the first year of the current cycle to 79,507 in the year under review. The rapid spread and virulent nature of the 1916 epidemic however emphasises the danger alluded to by him in his last report of "carrying over" villages, that is to say, villages which have been infected late in the preceding year and from which infection has not been stamped out during the hot weather. As an example of this, he cites the instance of four "carrying over" villages in the Madha taluka of the Sholapur district, in which 77 out of 89 villages reported cases, resulting in a total of 3,867 deaths, during the year under review. In this connection two main problems present themselves, the problem of completely eradicating plague from individual villages on which it has taken a firm grip and the problem of preserving other villages from contamination. Into the first problem it is understood that inquiries are still being prosecuted under the Indian Research Fund. The second problem must be solved by preventive measures. These are evacuation, inoculation, and rat destruction. Of these three methods of prevention the value of evacuation is well established but, as pointed out by the Sanitary Commissioner, it may

prove a fruitful source of danger unless properly controlled. if migration to uninfected villages is permitted. An example of the danger of irresponsible evacuation occurred two years ago in Sind, when plague-infected persons fleeing from Hyderabad carried the epidemic into almost every important city in the province. It is, however, no longer the policy of Government to draw a cordon round infected areas and, in the opinion of the Government, the responsibility of preventing the immigration of persons from such areas must rest upon the inhabitants of uninfected towns and villages, which should, through their local authorities, create a communal feeling against the admission into their homes of fugitives from plague.

Inoculation, the second method of prevention, has made some progress in recent years, but it is still viewed with prejudice by the majority of the population and even those, who have recourse to it, are apt to wait until an epidemic has set in before undergoing the process. The remarkable results of inoculation have been repeatedly illustrated and the Sanitary Commissioner states that it is quite feasible to inoculate the whole of the population of even a large city within a few days of the first appearance of plague. The Government, however, are not prepared to adopt a policy of compulsion but consider that the people must be gradually educated to recognise the efficacy of this simple prophylactic. The third method of prevention, namely, rat destruction, has not yet been practised on a large scale in this presidency, although the results of experiments in Satara have proved very satisfactory. Government have recently sanctioned a grant of Rs. 21,500 to the Poona Municipality for the purchase of 5,865 rat traps, with which to carry on a systematic campaign of rat destruction for a period of two years.

Small-pox accounted for more deaths than in the preceding year, although the mortality was below the decennial mean. The Government view with regret the attempts that are being made in certain quarters to depreciate the benefits of vaccination in the face of incontestable evidence of its efficacy. The figures quoted by the Sanitary Commissioner furnish the strongest possible proof of its immense value. Not only do the statistics compiled from nearly 1,500 investigated cases show that the incidence of mortality from small-pox is more than five times as high among unvaccinated as among vaccinated persons, but they also prove that vaccination very considerably advances the age at which human beings are liable to

be attacked, the average age of attacks among vaccinated persons being 18 and among unvaccinated 8.

The progress of sanitary administration has been less rapid than could be wished, partly owing to the economic conditions, which have temporarily interrupted schemes involving expenditure of funds, and partly owing to the dearth of qualified men for the post of health officers in municipal towns. There are at present only five such officers outside the City of Bombay besides 35 trained sanitary inspectors, although three others are shortly to be employed. There is thus urgent need for increasing the number both of health officers and sanitary inspectors, without whose services the sanitary regeneration of most of the larger towns of this presidency cannot be effected. It is a cause for satisfaction that the percentage of the total income of all municipalities spent on water-supply, drainage and conservancy increased from 27 to 38.

Good work was done during the year in the improvement of village water supplies, the Government grant of Rs. 62,000 made for that purpose being fully spent. The policy of converting step wells into draw-wells has resulted in a most gratifying reduction of guinea-worm, which is so closely associated with the former class of wells, and the government express a hope that Local Boards will pay even greater attention in future to this simple and inexpensive means of removing a painful and disagreeable disease. Another satisfactory feature of the year was the increase in the number and the greater activity of village sanitary committees. With the limited funds at their disposal, these bodies are unable to undertake works of any magnitude, but such useful sanitary improvements as the removal of prickly pear, the employment of sweepers and watchmen for drinking water tanks and the provision of incinerators for the destruction of rubbish are well within the means of most of them.

Reduction of Infant Mortality.

MRS. SAINT NIHAL SINGH WRITES IN THE *Indian Review* :—

THE problem of infant welfare in India is complicated by three causes, namely :

(1) the low economic condition of the Indian masses ;

- (2) their illiteracy ; and
- (3) the utter inadequacy of expert medical aid available before, at, and after child-birth.

The poverty of the people makes it impossible for them to employ medical aid even if it were available. The only effective way in which a crusade can be carried on against infant mortality in India is for the State to provide an adequate service of women doctors and midwives. That would mean the training of thousands of doctors and midwives, and the creation and maintenance of the service will involve much expense. Whatever amount of energy and money may have to be expended on this object would be wisely spent. Thousands of babies and mothers would be saved annually, and the children and women would be healthier and happier.

In view of the illiteracy of the Indian masses, propaganda by pamphlet or through the newspaper is impossible, and therefore, the maintenance of a service of health visitors to supplement that of doctors and midwives is more necessary in India than it is in Europe and America, where nearly everyone is literate. These visitors, by their wise counsels, have been the means of saving countless lives and bringing health and happiness to thousands of homes in many countries of the Occident. Any expense that India may incur upon them ought to be looked upon as a sound investment.

Private action cannot, of course, take the place of Government action. The task is too large and too complicated to be solved unofficially. But private effort can do much to ameliorate conditions.

Baby clinics could be started in the over-crowded wards of Indian cities. Literature dealing with pre-natal and post-natal care could be compiled and broadcasted among literate parents. Social workers could be sent to the homes of expectant and actual mothers to press the necessity of sanitary reforms that cost but little. Such measures would appreciably reduce infant mortality in India and improve the health of children and their mothers.

"Contagious" and "Infectious."

THESE are popular terms which are not scientific or precise, and we are often asked by intelligent people as to the difference between them.

A "contagious" disease is one that is readily communicable or "catching." The word is derived from 'contingere,' meaning to touch, and was at one time confined to diseases which were supposed to be "caught" from one having the disease by personal contact.

An "infectious" disease is usually considered to be one not conveyed directly and obviously as in the case of contagious diseases, but indirectly through some other medium. Typhoid fever was often taken as a type of infectious disease.

These distinctions are entirely artificial, and serve no useful purpose. Infectious disease may be contagious, and contagious disease infectious; and both terms leave out a large class of communicable diseases conveyed by insects. The word "communicable" is therefore much better and broader in every way, and should be used in preference to either of the above terms.

A "communicable" disease is one caused by a specific 'virus' transferred in a great many ways. Thus the virus in Diphtheria is the diphtheria bacillus; in Typhoid fever, Typhoid bacilli; in Malaria, the Malaria parasite carried by mosquitoes. The term "communicable" ignores the method by which the virus is conveyed. There is a great difference in the ease with which different diseases are conveyed. Some diseases such as measles and small-pox, are conveyed readily from one person to another, while others are communicated only with difficulty. Tuberculosis is a disease which is communicable, and yet a very long time may occur between the time when an individual became infected and the time he developed symptoms of the disease.

We can control our environment to a great extent, and can for instance destroy insects like mosquitoes which carry malaria and Yellow fever, or destroy lice, which convey typhus fever. But it is very difficult to control man himself, because it requires his own consent. It is therefore easier to stamp out Yellow fever through a campaign against the disease-carrying mosquito, than it is to stamp out typhoid fever which is carried and spread from one human being to another.—*Health Bulletin.*

Is State Subsidy for Housing Desirable? If so, on what Principle?*

[BY BAILIE A. W. PATON, J. P., DUNDEE.]

IF we take it for granted, as in a civilisation such as that of which we are heirs I am afraid we must, that a decent house to live in is something which may be fairly claimed by every good citizen, however humble his circumstances and that at a reasonable rent, such as it is within his competence to pay, then we must go further, and say that in the event of the haphazard system called "private enterprise," which has in the main provided for our communal needs in the past, if this system breaks down or fails to meet the need, then of necessity it devolves upon the local authority to provide for the shortage, and this on two grounds—first, to safeguard public health, and, second, to keep the standard of life of the individuals of which the community is composed up to such a level as will make it possible to combine the various classes together in one common bond as citizens.

Man is a gregarious animal. Not only is it true that he cannot live to himself alone, but he cannot live by himself alone; he must herd with his fellows. And perhaps this fact has more to do with the depopulation in rural districts than has yet been realised, because of the lack of provision in the country for healthy recreation, for companionship with his

* From a paper read at the annual congress of the Incorporated Sanitary Association of Scotland.

fellows, for friendly intercourse in the country as compared with the town. Whether that be so or not, failing private enterprise meeting the need, it undoubtedly devolves upon the local authority to provide for it.

Local Authorities' Burdens.

Local authorities, however, are increasingly faced with new duties involving financial burdens, and the bogey of rates is one that unfortunately is too apt to dispel the courage and damp the enthusiasm of all but the most steadfast. Local authorities cannot therefore be got to face this any more than other problems, unless the State is prepared to step in and bear its share. Here we are up at once against what is one of the greatest difficulties faced by housing reformers, the question of economic as against uneconomic rent.

The question is at once asked, on what basis rents are to be charged, not only by those interested in the ownership of houses as an inheritance, investment, or a business, but by all interested in employment in the building trades, as well as capital generally? If labour gets its fair return this should not be less than to provide a sufficiently comfortable standard of life for a man with his wife and family; and it is entitled in my opinion to nothing less. Then the question of economics in rent might, I think, be solved with this qualification. There might still remain a margin of the population, especially in densely populated areas, unable to provide a subsistence wage, and in their case unable to pay a sufficient rent to give an economic return. This difference might be made good by their employers, by the rates, or other local funds.

We are faced, however, with a present question, should the State subsidise housing? And to that I unhesitatingly answer: "Yes." If the provision of houses for the working classes is such as to make it absolutely essential for the local authority to step in, then it is a problem that should be solved unitedly by the two, local and imperial authorities. Not that there is so much difference, as some are inclined to think,

between local rates and imperial taxes, but primarily because in this way the strong would be better able to share the burdens of the weak. This problem, which is much more acute in some areas, and these generally the poorer ones, than in others, would then be contributed to by all in common. The national need would then have a national contribution to meet it.

Private enterprise cannot be expected to meet this enormous need until such conditions prevail as will ensure a reasonable return upon the capital invested, and under such circumstances local authorities must step in to enable the country efficiently to "carry on." To do this it will be necessary for all of us to co-operate, and to my mind a clear duty devolves upon the Government now to give the necessary assurance to local authorities which will enable them to go on in the confidence that those responsible for the conduct of the country's business will adequately rise to the situation.

Suggested Procedure.

As an indication of the procedure to be taken I would suggest—

(a) That local authorities be recommended to generally approve of the principle of their providing housing which cannot be met from private sources or by public utility societies.

(b) That the State should be asked to co-operate with the local authorities by grants-in-aid where a good case is made out, and either lend the capital sums on a low rate of interest or obtain same on a joint responsibility.

(c) The preparing of detailed schemes which, after meeting with the approval of the local authority itself, would be subject to the further sanction and approval of the Local Government Board.

I favour a contribution on the principle of grants-in-aid rather than in the shape of a fixed percentage of the cost at the time of building, or an annual contribution towards the loss on the basis of the amount spent, because

the amount spent by a local authority might bear no proportion at all to the needs of the community. A rich community would be far better able to spend a large sum on such a problem than a poor one, and on any percentage basis it would thus tend to gain even more. The State grants should be based altogether, in my opinion, on need, and the percentage should vary according to the strength of the case made out, not only of the housing shortage in the locality, but according to the measure of the ability of the area to bear the burden.

In addition, it might not unfairly be asked that the Government should co-operate with the local authority in the obtaining of loans, where necessary, on the lowest possible basis. I may say that spreading the cost over sixty years, which would be the standard of life given to a house by the Government, on the annuity rather than the sinking fund system, I believe such a basis of rental might be obtained as would in the majority of cases render housing a successful economic proposition for local authorities—especially as it must be borne in mind that in their case they would borrow the whole sum, and no charge made for property tax, as the schemes which they represent make no provision for any margin of income over cost.

Of course, I know there are other schemes propounded on the basis of money free of interest and so on, but the proposals I am trying to put forward are, I hope, neither impractical nor confiscatory in their nature, but such as can be examined and criticised by any body of experts as a contribution towards the solution of one of the most pressing of post-war problems which our country has to face.

Village Improvements.

Measures of Sanitary Reform in Paikar Village.

PAIKAR is a big village. Its population at the last census was 5181. The place was healthy till malaria broke out in an epidemic form in the year 1913. The

actual figures are not before us but not less than 1,000 deaths had taken place therein in 1913 and 1914.

There were a number of tanks in the village; they were all dirty and were used both for drinking and bathing purposes. The drainage was defective and the roads bad.

The first step towards the improvement of the village was taken in February 1915 when a sum of Rs. 800 was collected from the villagers for three wells in different parts of it. The District Board had already sanctioned a well there and now contributed the balance of the cost of the three wells. The four wells made the villagers independent of the water of the polluted tanks for drinking purposes.

The next step was the reclamation of one of the biggest and dirtiest tanks. The owners were persuaded to undertake the task. The reclamation has removed one of the worst nuisances of the village.

For the improvement of the drains, the Local Board has contributed a certain amount every year since 1915. This was supplemented by village contribution and the drains have been considerably improved. The condition of some of the roads has also been bettered.

As a permanent organisation for taking measures of sanitation, a Union Committee has been formed in the Chaunkidari Union, comprising Paikar and other villages. The Committee started work only in the beginning of the current year and has not yet been able to execute any work of importance.

In 1916 the District Board established a temporary anti-malarial dispensary in the village. The officer-in-charge of the dispensary treated free of charge, all malarial cases within the centre, and gave quinine free for prophylactic use to a large number of men and children. The experiment was most successful.

A scheme is on foot now for the establishment of a permanent dispensary in the village and subscriptions are being raised for the purpose.

The greatest obstacle in the improvement of village sanitation is the ignorance of the villagers and their indifference generated probably by years of suffering from malaria.

The anti-malarial campaign in the district in 1916 included within its programme a course of lectures on sanitation and hygiene. For want of magic lanterns, which could not be obtained, that part of the scheme could not be satisfactorily carried out, but elementary principles of hygiene and the causes of some well-known diseases were explained to the villagers both by the anti-malarial officer as well as the supervising officers. As a result of the measures described above, the death rate in the village has considerably gone down, the number of deaths up to date, in the current year, being only 68.

The beneficial results which have followed the initiation of the measures described above are mainly due to the zeal and energy of Babu Tarak Chandra Roy, Sub-divisional Officer of Rampurhat, and the sympathetic encouragement that he received from Mr. G. S. Dutt, I.C.S., District Magistrate of Birbhum.

The Madras Industrial Exhibition (1917).

WE invite the attention of the visitors to the Madras Industrial Exhibition to the highly useful and instructive Sanitary Exhibit (Stalls 107-108) organised by Mr. J. W. Madeley, Special Engineer to the Corporation of Madras, in connection with the Exhibition.

It is an exhibit of drawings, photographs, cartoons and models of the water and drainage works of the city of Madras.

It is especially interesting as illustrating in a clear and simple manner the whole of these important works of the premier city of South India. The full-size examples and

models, actually working, are particularly attractive and instructive.

The exhibit is divided into two sections—Water works and drainage works.

The principal exhibits in the two sections are as follows:—

WATER-WORKS MODELS.

1. *The complete water-works from Red Hills Lake to the house connection*, with details showing the construction of the roughing filter, conduit, sand filters, pure water tanks and house connections.

2. *Sand Filter actually working.* Water is seen leaving the conduit through a pipe which conveys it to the Filter Inlet Chamber, whence it flows through fine wire screens on to the top of the sand. The water passes vertically downwards, and, after leaving its impurities behind on the surface of the sand, is seen to flow away through an Automatic Regulator which keeps the rate of filtration constant.

3. *A full-size model of a house connection*, showing the brass ferrule screwed into the cast iron street pipe, from which water flows through a galvanized iron pipe—suitably protected from corrosion—to the meter to measure the water, and thence into the house. A stop cock is seen fixed on the road side of the meter so that the water-supply can be cut off if required.

DRAINAGE MODELS.

1. *Madras drainage system from house to sewage farm*, showing the type of drainage adopted for Madras City, including house connections, sewers, manholes, pumping stations and farm irrigation.

2. *First-class house drainage* as adopted in many hospitals, clubs, hotels, mercantile and private houses, showing sanitary fittings, soil pipes, waste pipes, anti-siphon pipes, traps, intercepting chamber, etc.

3. *Second-class house connection :*

(a) A full-size model showing how second-class house drainage is connected to the sewers.

(b) A second model similar to the first if cut down the middle, to show the special methods adopted to exclude silt, rags, leaf-plates, etc.

4. *Silt and storm-water separator* showing in actual working the methods of excluding silt and storm-water at the connection of open drains to sewers.

5. *Silt raiser* used to raise the silt which is deposited in the silt pits at the pumping stations. This model is constructed partly of glass to enable the actual working to be examined.

6. Sanitary fittings and pipes.

Inspection of works.—Arrangements can be made with the attendants at this exhibit for inspection of the Madras water and drainage works.

Gleanings from Municipal Reports.

The Presidency Corporations.

Bombay.—Notwithstanding the temporary difficulties arising out of the war, the income for the year amounted to Rs. 1,40,48,739, which exceeds that of the preceding year by Rs. 2,17,669 with the taxes levied at the same rates. The total expenditure was Rs. 1,42,14,292. The normal expenditure has shown a tendency to advance at a higher rate than that of the income. Most of the new works carried out were of a minor character. Several projects for which plans and estimates were prepared were held in abeyance for financial reasons. Rs. 2·18 lakhs were spent on street improvements in the direction of set-backs. The Report urges the early settlement of a definite policy in regard to street improvements.

The area of roads metalled and patched during the year was 65,60,292 square feet at a cost of Rs. 6,37,772. The rate for full metalling works out at 10·98 pies per sq. ft. The value of work done at the workshops was Rs. 2·43 lakhs, the transactions, unlike in Madras, resulting in a balance of Rs. 8,641 in favour of the workshops. During the year, a special investigation of the water works was made by Lieutenant-Colonel Clemesha, Sanitary Commissioner with the Government of India. His report will shortly be considered by the Corporation.

The improvement in the health of the city since the year 1900 was maintained. The birth-rate was 21·62 which was higher than that of the previous year. The death-rate was 31·21 against 24·17 in 1915, which was the lowest recorded since 1874. The figure, however, includes 1,642 deaths among new arrivals not belonging to the city, against 596 during 1915. Plague and small-pox were prevalent in an epidemic form and contributed principally to the increase in mortality.

Education rightly received the attention it deserves. During the year twelve new schools were opened for imparting primary education. There were in all 195 schools with 23,987 pupils at the end of the year. The medical inspection of municipal schools has been sanctioned for a further period of three years from 1st March 1917. We have just heard that a scheme for the introduction of Compulsory Elementary Education at a cost of 24 lakhs has been approved by the Corporation, to be spread over 10 years.

Calcutta.—The year has been uneventful. The financial stringency caused by the war affected the work of the year and all important original works had to be suspended and petty improvements strictly curtailed. The accounts of the revenue funds show an income of Rs. 1,16,04,590 and an expenditure of Rs. 1,12,86,773 as against Rs. 1,14,30,725 and Rs. 1,10,64,871, respectively, of the previous year. The question of raising the rates will have to be considered in the

current year, if the Corporation is to meet all its liabilities and obligations in the matter of important works, water-supply, drainage and road projects. The annual valuation of the city stood at Rs. 46 millions and the Corporation's present borrowing powers at Rs. 250 lakhs.

The expenditure on the maintenance of roads amounted to Rs. 8,62,000. The experiment of paving with Granolithic mixture proved a failure. The condition of the tar macadun roads was extremely bad after the rains. Asphaltum pavement was tried for four streets and the surface has withstood the disintegrating forces of one monsoon, and its further extension is contemplated. According to the recommendations of the Expert Committee appointed by Government, a comprehensive programme has been drawn up for laying 69 roads having an area of 5 lakhs square yards with Asphaltum pavement 2" thick over a foundation of 9" line concrete at an estimated cost of Rs. 21½ lakhs spread over a period of not less than five years. The wood pavements laid have not proved a success.

The value of work done in the municipal workshops was completed at Rs. 5,13,000, resulting in a profit of Rs. 32,011 in the year's working.

The health of the city was remarkably good. The death rate fell to 24·7 per 1,000, the lowest previously recorded being 27·2 in 1911. The birth-rate was 20·9 for 1,000 against 18·5 in the preceding year. The city was practically free from any epidemic during the year. We note that the experiment sanctioned for the removal of refuse by motor lorries has not been made. In view of the success—both financially and sanitarily—achieved in Madras and Bombay, it is hoped that something will be done in this direction in the current year. We are glad to learn that Mr. Sawday, the Deputy Chairman, is giving his special attention to the matter.

Madras.—The year under Report was financially better than was anticipated. The revenue increased by Rs. 1,89,000, all the major heads showing a general rise.

Owing to the financial outlook, very little was done in the matter of new works from revenue account. Under maintenance, the chief item calling for any remarks is the expenditure on communications. This was nearly Rs. 2,92,000 for which 45,897 squares of road were reformed. This is 75% of the quantity of work done in the previous year. A mile of roads was tarred for the first time and over $2\frac{1}{2}$ miles re-tarred. The tarring experiment has so far been successful in Madras, and we therefore regret that the Corporation recently resolved that no more tar was to be purchased except just sufficient to keep the roads already tarred in good condition. A short length of about 150 feet was laid with asphaltum. The net cost allowing for depreciation of plant was Rs. 2-9-4 per square yard. This high figure is attributed to untrained hand labour, war prices for asphaltum and cement and to the uneconomical methods adopted for treating materials. With proper plant, trained labour, pure dust instead of cement and asphaltum at pre-war prices, the cost should not exceed Rs. 1-6-0 per square yard. The life of the road which is suited to heavy traffic—both high speed and slow—is estimated at from ten to fifteen years. It remains to be seen whether this guarantee will be realised. So far, the asphaltum laid portion of the road has not shown any deterioration.

In the special works carried out under capital account, fair progress seems to have been made in the water works section. 114,400 feet of new water pipes were laid for the distribution system. Progress was also made on the works intended for the draining of storm water from the badly affected areas.

Street electric lighting was extended for five miles of streets, bringing the total to 58 miles of electric lit streets.

The value of work turned out at the municipal workshops was about Rs. 1,04,700 resulting in a loss of about Rs. 2,500 to the Corporation. The management of the municipal workshop and stores has never been quite satis-

factory and we are glad that a Committee has been appointed to enquire and report on their working.

Public health in the city was satisfactory during the year. The death-rate was 34·50 per 1,000, the lowest recorded since 1888. The infant mortality was 265·1 per 1,000 births, the lowest ever recorded, while the birth-rate of 41·8 per 1000 was the highest since 1905. With the exception of small-pox, there were no violent outbreaks of any other epidemics.

The conservancy of the city has steadily improved; motor lorry service is appreciably replacing the bullock cart service the former making for economy and efficiency. A motor lorry costs Rs. 597 per month to maintain and replaces 30 rubbish carts which cost Rs. 1,310 per month to maintain.

Bellary. DIFFICULTIES OF ADMINISTRATION.—The Municipal Council had to meet several difficulties during the year. Some of them had their origin in the levy of water tax while the scheme is still under investigation and in the change in the system of levying the scavenging tax. In the Council itself, there was undue prolongation of discussion which tended to continue the regrettable dissensions animadverted on by Government in their review of the report of the previous year. Apparently there is room for more work and less talk. Bellary has always suffered from an insufficient and inferior supply of water, and if an improvement is to be effected, the ratepayers must be prepared to pay for it. Leaders of public opinion must, therefore, endeavour to reconcile the public to what is after all a small sacrifice. Conservancy under the contract system was very unsatisfactory. The heavy fines imposed on the contractor led to no improvement, and the work was done departmentally with better results. The location of a Turkish Prisoners Camp in the Cantonment tended to draw away the sweepers and totis from municipal employment on account of the higher wages offered for service in the camp.

Malaria is reported to have become endemic in the town, and we hope a full trained health officer will soon be sanctioned so as to improve the sanitary administration.

We are afraid Bellary is gradually losing its importance, and we hope the Council will cultivate their sense of civic pride and better results will be recorded in their next report.

Coonoor. DEFECTIVE PUBLIC SCAVENGING.—The work of the sweepers and totis has improved but many public latrines are in urgent need of repairs. They are not sufficiently conserved, and there are complaints about the malodorous condition of the streets.

The municipal administration of Coonoor used to attract public attention during the paid chairman's *regimé*. On the expiration of his tenure of office, the revenue Divisional Officer assumed charge and subsequently he was elected as chairman by the Council. The sanctioned strength of the Council, including the chairman remained at 12, out of which as many as 10 are nominated. We hope that more seats will be thrown open for election.

Dharapuram is an infant municipality—still in the initial stages of its work. The Report under review deals with the first complete year of its working. It is indeed unfortunate that so early in its career the Council had to deal with a severe epidemic of plague on account of which the town was practically deserted by the people for five months. We notice, however, there is a good deal of public spirit in the town as evidenced by the fact that a sum of Rs. 1,000 was contributed by the inhabitants for the purpose of employing a female medical officer in addition to their meeting the entire cost of disinfection of all houses and buildings.

The most urgent need of the town is a proper water-supply and we hope that by the time the next report is presented the Council will have matured a suitable scheme for financing the water works.

Dindigul. STEADY PROGRESS.—The Report shows that steady progress was achieved during the year under review. We are glad to note that while the revision of the taxes brought about an appreciable increase in the demand, the collections were very good and did not fall off; and there was small need of coercive processes. We invite the attention of the Council to the urgent need of improving the water supply of the town. The Council records its 'high appreciation of the efficient administration of the Chairman assisted by the energetic and untiring Secretary.' There is need for commending this noble example of civic co-operation to certain municipal councils where faction and fighting are prominent features.

Gudiyattam. A PLAGUE INFECTED AREA.—The town was never free from plague during the year under report. This persistent visitation of the disease necessarily hampered the work of the Municipality in all its branches. Rat catching operations were vigorously carried on, no less than 18,223 rats having been caught and destroyed. There were 857 attacks and 403 deaths from plague. "Without the hearty co-operation" says the Chairman, "of all classes within and without the Municipality the success of plague preventive measures must necessarily be only qualified. Improvement in this direction is only very gradual and in educating public opinion on this all important matter it is sincerely hoped that the members of the Council will play a more prominent part in future."

Guntur. FINANCIAL STRINGENCY.—The report of this municipality shows the need for a proper study of municipal finance by those who undertake the difficult and responsible task of Municipal Government. The readiness to treat all receipts, from whatever sources they may be derived, as part of the normal revenue and the neglect to reserve them for meeting capital expenditure, have resulted, in the case of several municipalities, in financial difficulties. Sale proceeds of house-sites are added to the general fund and treated as

ordinary revenue. In other cases, the tendency is to meet capital expenditure from ordinary revenues. In both cases, the mistake is due to an imperfect understanding of the right principles of municipal finance and account. In Guntur, the attempt to pay for such extensive works as the new hospital out of revenue has been largely responsible for the stringency of the Council's resources. The closing balance under general funds was, we observe, only Rs. 473 and even this balance was only rendered possible by means of the sale to the American E. L. Mission of the Bavaji Mattam Land! What should have been reserved to meet capital expenditure—such as the municipal share of the cost of the new hospital—has been added to the general fund and spent away.

The report refers to a munificent donation of Rs. 1,000 by M. R. Ry. J. Venkatappaya Garu towards the cost of a caste ward in the General Hospital, in response to the appeal made by the Surgeon-General to the generosity of the wealthy of Guntur. The popularity of the hospital necessitates the addition of new wards and as the Government cannot in the present state of financial stringency give any large grant for this purpose, private munificence must supply this pressing need. We hope the example of Mr. Venkatappayya will be followed by other wealthy citizens.

Madura. A CONGESTED CITY.—Madura is the largest District Municipality in South India but we are afraid the City lacks in what we may call civic pride. The attendance of councillors was comparatively poor; there appears to be no great competition for seats in the council, and in all the three cases in which elections were contested, there were, we are sorry to observe, disputes afterwards as to the validity of the elections. The administration continued to be in the hands of a paid chairman. We should, however, like to see a non-official honorary chairman guiding the administration of the premier District Municipality.

The extension of house-sites is the most serious problem of the town. The town has not expanded in proportion to the

rise in the population. The congestion is intense owing to the concentration of the offices and the courts of two districts in one town. It is a pity that houses should be allowed to be built on the banks of the Anuppanadi channel which is the main sewer of the town. An attempt has been made to start town extensions and it is hoped that an early execution of the Sokikulam and other schemes will afford considerable relief to the congestion.

The precautionary measures taken in connection with the annual Chitrai festival prevented the outbreak of any epidemic, and the formation of a volunteer corps considerably helped the festival arrangements. The volunteers not only co-operated with the executive officers of the municipality in securing the success of the sanitary arrangements, but also helped the pilgrims and the visitors in a variety of ways. The patrol of about 300 volunteers day and night throughout the area where the pilgrims halted prevented the petty thefts which used to occur largely at this festival in previous years before the corps was organised. We commend this praiseworthy example to other places of pilgrimage.

Rajahmundry. A POLICY OF DRIFT.—Civic administration in Rajahmundry is far from satisfactory. The Collector summarises the year's work in the following sentence: The general impression conveyed is that the municipal policy has been one of "drift". The collection work was most inefficiently performed. Excessive expenditure on establishments continued, while roads were starved; comparatively little was spent on education and the income derived from markets and slaughter houses was diverted to other purposes so that the markets and slaughter houses were neglected and left in a condition which must have been a serious menace to the health of the town. The report indicates that the Council has failed to realise its civic responsibility.

Tanjore. IMPROVED ADMINISTRATION.—The unfavourable remarks of the Government on the administration during

the previous year brought about an improvement in the administration during the year under review.

The new chairman's administration shows a distinct improvement in many directions and the improvement would perhaps have been greater still, if he had received adequate support from the Council in the disciplinary measures which he found necessary to take against incompetent and refractory members of his staff.

The Town Extension Scheme is reported to have progressed and 36 sites have been sold out of 93 for Rs. 22,067 against the estimated upset price of Rs. 38,408 for all the 93 sites. We should warn the Council against treating the sale proceeds as part of the ordinary revenues of the municipality. They should be set apart for capital expenditure.

Tinnevely. POPULARITY OF TUBE WELLS.—The increasing use of tube wells which are very popular, has served to reduce the mortality from cholera. There were only five deaths from cholera during the year against an average of about 150 for the previous 20 years. Fourteen tube wells were sunk in the year under report, and sanction has been obtained for sinking 22 additional tube wells; the work has been commenced in the current year.

The Report refers to a dispute with the Palamcottah Municipality about proportions of tolls revenue. The chairman points out that though the charges under communications amount to 128·0 per cent. of the tolls revenue as against 50 per cent. prescribed, the roads could not be maintained in quite a satisfactory condition. The tentative scheme formulated by Mr. J. P. Bedford does not seem to work satisfactorily and it is hoped that the two municipalities will soon come to a satisfactory and equitable working arrangement.

Tiruvallur. DEFECTIVE SANITATION.—The chief need of the town is ordinary sanitation. There is no protected water-supply; nor is there a proper system of drainage. Sewage is stagnant in most of the backyards, and mosquitoes breed in

the drains and cesspools ; it is reported that of late elephantiasis has shown itself among the inhabitants. The Council must therefore try and improve the conditions. We notice that trial borings were made in two places to a depth of 120 feet by the Department of Industries to see if sub-artesian springs could be had. The results of the trials are reported to be satisfactory. If the water proves on chemical examination to be fit for drinking, the Council should lose no time in arranging to fit up the two wells with pumps.

The inability of the council to elect a vice-chairman, though 3 meetings were held for the purpose, calls for unfavourable comment.

Walajapet. UTILIZATION OF PROVINCIAL GRANTS.—The progress made in the works undertaken with the aid of provincial grants is markedly slow. The unspent balance on 1st April 1916 was Rs. 16,831-14-9 and the receipts during the year under report were Rs. 9,443. The total amount thus available for expenditure during the year was Rs. 26,274-14-9. Out of this sum, however, only Rs. 7,900-1-4 was spent leaving a large unspent balance of Rs. 18,374-13-5. It is hoped that progress during the current year will be more satisfactory.

Public health was generally good and owing to the prompt efforts of the Chairman, the town escaped an epidemic of plague when neighbouring places were infected.

Legislative Intelligence.

[Bihar and Orissa.]

THE Hon'ble Rai Bahadur Purnendra Narayan Sinha asked if the Government have decided to take any action to prevent the sale of adulterated *ghi*?

Government replied that they had under consideration a Bill for the prevention of the adulteration of food.

The Hon'ble Rai Bahadur Sharat Chandra Sen asked if the Government will consider the desirability of appointing non-official Chairmen of District Boards in districts where competent non-official Chairmen are available?

Government replied that they "have watched the experiment which has been made in Bengal and are now considering in what districts of this Province it may be tried".

The Hon'ble Mr. S. K. Sahay asked on what principle nominations were made for membership in the District Boards?

Government replied :

The Commissioners appoint to the District Boards persons of position who are qualified by their practical experience or local knowledge to assist the Boards in their deliberations where the interests of any important community are insufficiently represented by the elected members; the need for removing the inequality is considered when new appointments are being made.

The Hon'ble Mr. S. K. Sahay asked what functions were entrusted to the Sanitary Department of the Government?

Government replied :

The functions of the Sanitary Department are chiefly of an advisory nature, the Department being open to consultation by Government officers and local bodies on any questions relating to water-works, drainage, conservancy, town-planning, public health and the like subjects. The administration of vaccination and the collation of vital statistics is also entrusted to the Department. The Sanitary Engineer inspects the existing sanitary engineering works and makes recommendations regarding their administration and maintenance.

[Punjab.]

The Hon'ble Sayad Makhdum Rajan Shah asked whether, in view of the recent announcements of H. E. The Viceroy as regards the development of Local Self-Government, the Government would consider the desirability of requiring executive officers not to stand for election as Presidents of Municipal Boards?

Government replied :—

Under section 20 of the Municipal Act, 1911, the election of a President is a matter in the discretion of the Committee

and Government is reluctant to restrict in any manner the power thus conferred. There is no reason to suppose that executive officers use their influence to secure election.

13 Municipalities in this Province already possess elected non-official Presidents; where other Municipal Committees desire to follow that course, Government will certainly not raise any objection to the election of a suitable non-official as President.

The Hon'ble Chaudhri Lal Chand asked if Government would direct all District Boards so to multiply primary schools within a definite period as to leave no village or group of villages having a population of 1000 or upwards without a school?

Government replied :

In June of this year, the Local Government asked for maps to be prepared for the extension of primary education in District Board areas. The lines on which these maps were to be prepared are those suggested by the Hon'ble member in his question. The maps and programmes have been received and were considered by a special committee. The recommendations of this committee are now being submitted to Government.

The Hon'ble Chaudhri Lal Chand asked for a statement showing the names of the District Boards which have got non-official presidents and vice-presidents.

Government replied :

Details regarding the chairmanship of District Boards are to be found in statement No. I of the Annual Report. No board in this Province has at present a non-official chairman. There is nothing in the Act restricting the chairmanship to officials and Government is prepared to support the experiment of appointing non-official chairmen in selected districts should any desire for this change be manifested and provided that a well-qualified executive staff is maintained.

The selection of vice-chairman is a matter entirely at the discretion of the board (*vide* section 19 of the Act) and Government receives no information as regards such appointments. It is believed, however, that in a majority of cases non-officials have been appointed to this office.

[United Provinces.]

**APPOINTMENT OF NON-OFFICIAL CHAIRMAN OF DISTRICT
BOARDS.**

The Hon'ble Raja Kushalpal Singh asked :—

Is the Government aware that the Madras Government has decided to appoint four non-official chairmen of district boards? Will the Government be pleased to consider the desirability of trying a similar experiment in these provinces?

Government replied :—

The honourable member is referred to the speech of the Hon'ble Mr. Pim on the resolution moved on this subject by the honourable member at the meeting of the Council held on the 29th January, 1917. The Hon'ble Mr. Pim pointed out that 'there are many changes in districts boards' procedure and responsibilities to be made before they can be handed over as municipal boards;' and said that 'although there are in several districts non-official gentlemen whom the Local Government would be very glad to associate with duties of this nature it does not desire to hand over to them an unmanageable task.' There is nothing to be added to this statement of the policy of the Government. The Government has not yet received the report of the non-official committee which was appointed to consider the question of the revision of the District Boards Act.

Government Orders, Notifications and Resolutions.

[Bombay.]

ELECTED PRESIDENTS FOR CITY MUNICIPALITIES.

THE Poona City Municipality has enjoyed the privilege of electing its President since the year 1885. The Municipalities of Ahmedabad and Surat also elect their Presidents in accordance with the decision of Government in their Resolution No. 5801, dated 23rd July 1915, that the President of any Municipality for which a Municipal Commissioner has been appointed shall be elected by such Municipality. The same privilege has also been conferred by Government Resolution No. 442, dated 19th January 1916, on the city municipalities of Broach, Nadiad, Ahmednagar, Nasik, Dhulia, Sholapur, Belgaum, Bijapur, Dharwar, Hubli and Gadag-Bettigeri. The Governor in Council is now pleased to direct under section 23 (2) (c) of the Bombay District Municipal Act, 1901, that every President of a City Municipality in the Presidency proper shall in future be elected by such municipality. Accordingly, the remaining city municipalities, *viz.*, those of Bandra, Godhra, Viramgam, Thana, Jalgaon, Yeola, Barsi, Satara Town, Bhusaval, Malegaon, Pandharpur, Bagalkot, Guledgud and Ratnagiri, shall in future elect their Presidents, and the arrangement shall come into force when the offices next fall vacant.

2. The Commissioner in Sind, to whom powers under section 23 of the Bombay District Municipal Act, 1901, have been delegated, should be requested to issue similar orders so far as the City Municipalities in Sind, are concerned. [Govt. Resn. No. 8066, dated 17-11-1917.]

[Punjab.]

FINANCIAL RELATIONS BETWEEN GOVERNMENT AND DISTRICT BOARDS.

The Local Government has lately had under consideration the whole question of the revision of its financial

relations with District Boards. In the past, the policy has been to make a series of separate earmarked grants for definite specified purposes such as Education, Engineering Establishment, Veterinary Establishment, etc., most of these grants were of a recurring nature. In particular, large recurring grants were made for the upkeep of roads, and a considerable sum was also distributed a few years ago in non-recurring grants for the same purpose. The object of this policy was to supplement the boards' resources and afford direct encouragement to various activities on their part. With a view to giving district boards greater financial autonomy and to enable them to prepare and carry out their schemes on broader lines it has been decided to discontinue these recurring earmarked grants except in the case of those for Education, and, instead of a series of special grants, a single recurring grant has been fixed for each district board of the province. These grants will ordinarily be subject to revision at the end of five years. A large number of contributions from district boards to Government, mostly of a petty nature, have also been relinquished. Time and unequal expansion in different parts of the Province had, moreover, combined to render the old scale of grants inadequate in some districts and unduly liberal in others, and the new system of distribution has been designed with the object of removing these inequalities as far as possible. This procedure has resulted in a very great simplification of accounts, and as the district boards have full power, subject to the general control of the Commissioners and the Local Government and to the ordinary financial rules, to expend the recurring grants now placed at their disposal at their discretion, His Honour considers that the new scheme will be a substantial step forward in the direction of local self-government.

2. The question of fixing these recurring grants so that they will be fair for every district has been a matter of no little difficulty. The system on which they have been based is as follows :—

For each district the normal income from existing sources of revenue has been calculated. On the expenditure side an estimate has been framed of the normal annual expenditure which should be incurred by each board in order to maintain properly the existing services and works entrusted to it. To the income figure has been added the recurring Educational grants fixed by the Director of Public Instruction. The consolidated grant for the board has then been fixed at such a figure as will leave a margin amply sufficient to cover any possible error in the calculations. In two districts, *viz.*, Lyallpur and Multan, it was found that the normal income was already largely in excess of the normal expenditure, and no recurring grants were made to these districts, the money thus saved being distributed among the poorer boards. The Rawalpindi Division was the first to be taken up and owing to a strict interpretation of the principles laid down, the margin between normal income (including the lump grant) and normal expenditure was kept within the lowest possible limits. After the experience gained in dealing with this division the consolidated grants of the other divisions were fixed on a somewhat more liberal scale, the position of Rawalpindi being, as will be seen below, correspondingly improved.

3. It is not of course possible to reduce the relative needs of different local bodies completely to figures, but the Lieutenant-Governor considers that the grants now fixed should enable all to maintain in an efficient manner the existing works and services and should even allow for a certain amount of expansion. Most of the district boards have now raised their local rates to the very moderate maximum allowed by the Act, *i.e.*, 10 pies in the rupee of the annual value, and the grants have been calculated on the not unreasonable assumption that the other boards will follow their example.

4. The recurring grants for Education have not been brought within the scope of the scheme and remain on their

previous footing. The educational needs of most of the districts are expanding so rapidly that the grants earned by the boards according to the system of distribution now in force require continual alteration. In view, moreover, of the great importance of the subject, His Honour does not consider it advisable that the district boards should have the power of spending the educational grants on other objects.

5. In addition to the recurring consolidated grants described above, it is proposed to place at the disposal of each Commissioner, whenever the finances of the Province permit, a certain sum to be distributed among the district boards of his district in special grants for expenditure on new undertakings. The scale of these development grants which has been provisionally fixed is as follows :—

<i>Division.</i>		<i>Development grants.</i>	
		<i>Rs.</i>	
Ambala	...	...	40,000
Jullundur	...	...	50,000
Lahore	...	...	40,000
Rawalpindi	...	...	90,000
Multan	...	...	40,000
Total...		2,60,000	

The large grant for the Rawalpindi Division has been fixed in consideration of the fact stated above that the other divisions have been treated more liberally in the way of recurring grants. This sum of Rs. 2,60,000 will be increased when funds permit, but may have to be reduced when stringent economy is necessary. It is intended that ordinarily such increases or reductions should be made proportionately. The total of the consolidated recurring grants now sanctioned is Rs. 7,74,400, and this sum plus the amount proposed for the normal development grants exceeds by approximately Rs. 95,000, the total of the recurring grants which have been abolished. The contributions of district boards to Government which have now been relinquished amounted to about

Rs. 42,000 so that under the new scheme these local bodies will benefit to the extent of Rs. 1,37,000 per annum.

The above figures do not include the special grant of 3½ lakhs which has been made annually for the last few years to certain boards for new roads in the canal colonies.

6. In the statement appended (see next page) the consolidated grant for each district has been shown, together with the estimated normal surplus resulting therefrom. This normal surplus is the excess of normal income, calculated as explained above, plus the consolidated grant and recurring educational grant over normal expenditure (exclusive of expenditure on new works).

7. With the introduction of the new system, applications from district boards to Government for assistance to particular schemes will not ordinarily be considered unless they are of such magnitude that it is obviously impossible for the board concerned to finance them from its own resources, augmented by the general grant-in-aid. This will not, however, preclude Government from making over to the boards, when its finances permit, further sums, in pursuance of any particular object, while in the case of sanitary schemes applications for special assistance can always be submitted to the Sanitary Board.

8. The fixation of the grants has entailed a substantial amount of labour and it has been decided that only in very exceptional circumstances will any readjustments be permitted during the period of their currency. Consequently the practice of submitting at any time proposals for the transfer or re-transfer of provincial properties from or to district boards must now be curtailed and henceforward such proposals will be considered only in connection with the general revision of the grants unless the changes can be effected without any alteration of the grants, *e.g.*, by the acceptance of any extra charges on the margin which the grants allow or unless the transfer is so urgent that its postponement would be attended with serious inconvenience. [Govt. Resn. No. 21460, dated 19th November 1917, Fin. Dept.]

Statement showing the consolidated grant for each district together with the estimated normal surplus resulting therefrom.

(Figures in Thousands).

DIVISION.	District.	Consolidated grant.	Normal surplus (Local rate has been assumed to be 10 pies per rupee of the annual value).	REMARKS.
		Rs.	Rs.	
AMBALA ..	Hissar ..	10	43·5	
	Rohtak.. ..	26	41·5	
	Gurgaon ..	52	41	
	Karnal ..	34	42	
	Ambala ..	53	50	
	Simla	34	..	
	Total ..	178·4	218	
JULLUNDUR ..	Kangra ..	60	41	
	Hoshiarpur ..	30	30	
	Jullundur ..	45	32	
	Ludhiana ..	20	37	
	Ferozepore ..	2	55	
	Total ..	157	195	
LAHORE ..	Lahore.. ..	35	38·7	
	Amritsar ..	50	51	
	Gurdaspur ..	30	53·8	
	Sialkot ..	25	40	
	Gujranwala ..	30	62·8	
	Total ..	170	246·3	
RAWALPINDI.	Gujrat ..	30	25·6	
	Shahpur ..	22	48·6	
	Jhelum ..	18	5	
	Rawalpindi ..	12	5	
	Attock ..	26	5	
	Mianwali ..	26	5	
	Total ..	134	94·2	
MULTAN ..	Montgomery ..	35	42·8	
	Lyallpur ..	..	146·5	
	Jhang ..	25	41·3	
	Multan ..	..	53	
	Muzaffargarh ..	20	23	
	Dera Ghazi Khan.	55	26·5	
	Total ..	135	333·1	
	GRAND TOTAL ..	774·4	1086·6	

Municipal Bye-laws.

Manufacture and Sale of Sweetmeats (Cawnpore).

BYE-LAWS FOR THE REGULATION AND INSPECTION OF PLACES
FOR THE MANUFACTURE, PREPARATION OR SALE OF
SWEETMEATS IN THE CAWNPORE MUNICIPALITY.

IN these bye-laws, sweetmeat means all food stuffs prepared or sold by *halwais*, *khaunchawals* and *nanbais* and includes *pooris*, *kachauris*, bread, biscuits, *samosas*, vegetable-curries, sweetmeat and *chat* intended for human consumption, but does not include European confectionery.

2. Nothing in these bye-laws shall apply to any house or building used for making or storing sweetmeats intended for private consumption only.

3. No shop proper or store room shall be used for residential purposes.

4. The following condition shall be observed by the keepers of sweetmeat shops:—

(a) The shop shall not be within 50 feet of any public latrine or pail depôt.

(b) The shop proper shall be separated from a privy either by a pucca wall or an open space of at least six feet.

(c) The floor of the shop shall be paved or cemented.

5. Sweetmeats intended for sale shall not be placed on or on a dirty utensil or exposed for sale without protecting them from flies and dust. All dusters and covers used must be clean.

6. All substances used in the preparation of sweetmeats must be free from harmful adulteration and of good quality.

7. No person suffering from any contagious or infectious disease shall be employed in the shop or allowed to sell sweetmeat or other cooked articles of food.

8. Water kept for cleaning utensils and for use in the preparation of sweetmeats and for drinking by customers shall

be obtained from the municipal pipe supply or from a pure source sanctioned by the health officer or district sanitary officer. Water thus obtained must be stored in clean vessels provided with covers adequately to protect it from contamination.

9. No cupboard, case, utensil or other apparatus shall be used in any such place while in a dirty condition or in a condition that fails to secure, so far as is possible, the immunity of all sweetmeats, articles or ingredients in or for the making thereof, from contamination by dust, insects or other injurious things.

10. Every such place shall be adequately lighted and ventilated and shall be whitewashed at least once quarterly.

11. No lamp or other light shall be used in any such place which is likely, by reason of its construction or condition, to cause smoke or soot.

12. All such places shall be open during business hours to inspection by the executive officer, and the occupiers thereof shall be bound to comply with all reasonable directions consistent with the purposes of these bye-laws issued to them by the board.

Notes of Cases.

Highway: Accident: Projecting Guards round Trees: Liability of Local Authority: Public Health Acts (Amendment) Act, 1890, Sec. 43.

In *Morrison v. Sheffield Corporation* (Court of Appeal; July 5th), the Corporation appealed from the decision of Mr. Justice Rowlatt. The facts of the case were as follows:—The Corporation, in exercise of the power in that behalf given by sec. 43 of the Public Health Acts (Amendment) Act, 1890, planted some trees in Abbeyville-road, Sheffield, which were fenced round with iron guards between five and six feet high, projecting outwards, with spikes at the top. In compliance with an order under the Defence of the Realm Regulations, the street lights were extinguished after a certain hour. The plaintiff was walking along the road

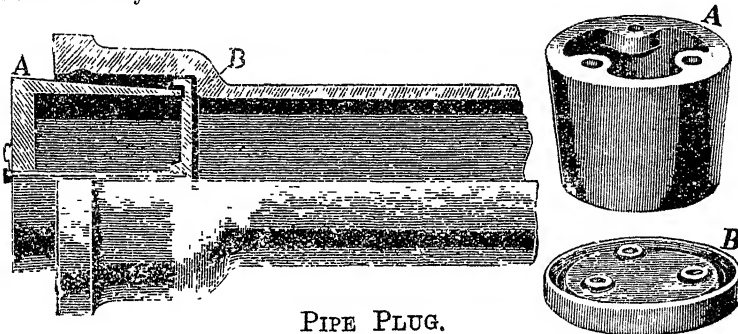
after the lights had been put out when a spike of one of the guards, which was somewhat lower than the rest, ran into his eye. Mr. Justice Rowlatt put the following questions to the jury, both of which were answered in the affirmative, viz., (1) Was the guard dangerous in the dark? (2) Ought the Corporation to have taken reasonable measures to neutralise the danger before the date of the accident? The jury awarded the plaintiff £660 16s. damages, and judgment was given in his favour for that amount. The appeal was dismissed. Lord Reading, in the course of his judgment, said that it was contended by the Corporation that there was no evidence of any breach of duty on their part, and they relied on the fact that the trees had been placed in the street under the powers given them as urban authority by sec. 43 of the Act of 1890. They contended that having erected these guards, which were admittedly safe in normal circumstances, there was no further decree of care imposed on them by reason of the Lighting Order. In his view, this argument was unsound. Under the proviso to the section he thought it clear that the Corporation were under an obligation to use reasonable care for the whole of the time during which they maintained the guards on the public highway. It followed that if, by reason of altered circumstances, what was not a danger became a danger to any one lawfully using the highway, the standard of their liability was altered also; and it was upon the Corporation to show that, in the altered circumstances, they had discharged their duty of taking reasonable care. That was a question of fact for the jury and the jury had found that in this case the onus had not been discharged.

Materials and Appliances.

Pipe Plug for Water Works.

THE Norwood Engineering Company of Florence, Massachusetts, have patented a plug for which they claim the following advantages: 1. It can be put in and taken out as often as required without injuring the pipe or plug. 2. It can be put in a pipe as quickly as the

old style plug ; and taken out from five to ten minutes, and is ready to use again, whereas the old style plug has to be broken out taking from fifteen minutes to half an hour, thereby losing time and plugs. 3. It is as safe to use as the old style plug, has been thoroughly tested under heavy pressure, and was never known to break or blow out. 4. Any pipe-layer can use it : it does not require an expert to put it in or take it from a pipe. Its mechanical simplicity together with the fact that one loses no plugs recommends it at once. 5. It saves money.

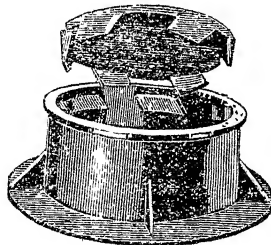


PIPE PLUG.

The plug is made in all sizes from 4 inches to 24 inches and consists of two parts, shell and plate. Its construction is simple and the Company issues illustrated directions for using it.

A Manhole Cover for Heavy Traffic.

The Wm. E. Dee Company of Chicago have designed a manhole cover to stand the stress of heavy street traffic. The characteristic points of this cover are that it cannot be "dished" or jogged out of place and when properly set in



MANHOLE COVER.

place does not rattle. The cover is provided with dove-tailing plugs which prevent jogging or rattling and ensure adequate protection against any pressure which may be exerted on it.

REPORTS.

PRIVY COUNCIL

ON APPEAL FROM THE HIGH COURT OF JUDICATURE AT FORT
WILLIAM IN BENGAL.

Present:—THE LORD CHANCELLOR (LORD BUCKMASTER).
LORD ATKINSON, AND SIR JOHN EDGE.

MRS. A. J. S. JOSEPH.....Plaintiff, Appellant.

vs.

THE CORPORATION OF CALCUTTADefendant.

Respondent.

Compensation for removal of fixtures by Calcutta Municipal authority—Whether payment of compensation is a condition precedent to such removal—Court by which claim to such compensation is cognisable—Whether before removal a suit will lie to declare right to compensation in case of removal—Calcutta Municipal Act, 1899 (Bengal Act III of 1899). Ss. 341, 617, 618, 619.

The Calcutta Municipal Act, 1899, provides that the Corporation shall compensate every person who suffers damage by their removal of fixtures erected before June 1, 1863.

The Corporation served J with notices under s. 341 to remove certain structures and thereafter obtained orders from the Magistrate for their demolition, but took no steps to enforce those orders. J brought a regular suit in the Court of the Subordinate Judge against the Corporation claiming (1) declaration that the fixtures were erected before June 1, 1863, (2) declaration that she was entitled to compensation for loss she would suffer by their removal, (3) declaration that the Corporation could not remove them till the compensation was paid, (4) that the Court should fix the amount of compensation, (5) an injunction restraining removal till the compensation was paid.

Held, that on the true construction of s. 341 (3), the assessment of compensation was not a condition precedent to the demolition of the structures:

Held also that Courts other than the Small Cause Court were by S. 17 of the Act debarred from fixing the compensation, and therefore as the suit sought relief under any but the first two heads, it was misconceived, but that

J was entitled under s. 42 of the Specific Relief Act, 1877, (Act I of 1877) to a declaratory decree for the first two claims, the Corporation having denied her right to compensation until the hearing of the appeal against the decree of the Subordinate Judge

Appeal from a decree of the High Court at Calcutta (June 11, 1913), reversing a decree of the Subordinate Judge of the 24 Pergunnahs (May 19, 1910). The facts of the case are sufficiently stated in their Lordship's judgment. The main questions which arose on this appeal were (1) whether plaintiff was entitled to payment of compensation before her fixtures were removed, and (2) whether a Court other than the Small Cause Court could entertain a suit for such compensation. Both these questions were decided in the affirmative by the Subordinate Judge, but in the negative by the High Court.

De Gruyther, K. C. and Sir W. Garth, for the appellant. We do not dispute that compensation is contingent on the removal, but we contend that the Corporation cannot remove without first paying. They denied that the fixtures were erected before June 1, 1863, and we proved this only after a very long trial and at great expense. When we filed the suit, the Corporation had an order, affirmed by the High Court, under which they could have removed the fixtures, and the removal itself would have made it impossible for us to prove when they were erected. Under the Lands Clauses Act of 1845, compensation is assessed before the interference with the property; to assess it afterwards will always be more difficult and in some cases practically impossible. "Suffers" in s. 341 is equivalent to "will suffer."

S. 617 of the Act, by which it is sought to exclude the jurisdiction of the Subordinate Judge, is not exhaustive but merely provides a summary method of determining the amount of compensation at the instance of the Municipal authority. This is clear on referring to ss. 618, 619, the first of which gives the Municipal authority only a summary remedy, while the second provides that they shall have the right to take regular proceedings.

(The Lord Chancellor referred to s. 615).

The Small Cause Court has no power to determine the question whether there is any right to compensation, but merely to fix the amount when the right is admitted.

A. M. Dunne, for the Respondents, was asked to confine his argument to the first two reliefs.

The relief by way of declaration is at the discretion of the court: Specific Relief Act, 1877, s. 42. The suit was mainly for a declaration, the real object was to obtain payment before removal, but the Act does not contemplate such payment, vide s. 614 where the words used are "sustains damage", but when this suit was instituted there was no present cause of action for determining the amount of damage. We do not resist the appellants getting the declarations, but they should not be allowed costs, as on all vital points they have failed. They could have had their declaration in the High Court, but there they contended that the decree awarding them compensation was right.

De Gruyther, K. C. replied.

Their Lordships delivered the following judgment:—

JUDGMENT.

THE LORD CHANCELLOR.—In this case the appellants are the owners of a bazaar in Kidderpur, which abuts upon two public streets known as Garden Reach Road and Diamond Harbour Road respectively. Along the frontages of these streets there are a number of verandahs or shops connected with the main buildings and erected upon culverts or platforms placed over drains which run by the side of the roads. The streets and drains are vested in the respondents as the Corporation of Calcutta, and they, on the 13th July, 1905, and the 21st April 1908, served notices (under s. 341 of "The Calcutta Municipal Act of 1899") upon the appellants, requiring the removal of these fixtures in Diamond Harbour Road and Garden Reach Road respectively. The provisions of s. 341 so far as it affects service of the notices, is not material,

but it contains, in sub—sec. 3, certain provisions material to this dispute, which are in these terms: "If the owner or occupier of the building proves that any such fixture was erected before the first day of June, one thousand eight hundred and sixty three, or that it was erected on or after that day with the consent of any Municipal authority duly empowered in that behalf, the Corporation shall make reasonable compensation to every person who suffers damage by the removal or alteration of the fixture."

The appellants paid no attention to the notices, and the respondents accordingly made application to the magistrate for demolition of the structures as to Diamond Harbour Road, on the 22nd November, 1908, and as to Garden Reach Road, on the 5th November, 1908. Orders were made on both these summonses—on the first on the 22nd December, 1906, and on the second on the 27th May, 1909.

A rule *nisi* was obtained by the appellants to discharge the order relating to Garden Reach Road, but this rule was set aside on the 22nd July, 1909.

On the 6th August, 1907, the respondents, in answer to an application of the appellants, offered 178 rupees as compensation for certain of the erections in Diamond Harbour Road; on the 6th August, 1909, a similar application was made in respect of Garden Reach Road, and no reply having been received by the 20th August, 1909, these proceedings were instituted. At this time no step whatever had been taken by the respondents to enforce the order for demolition, nor excepting in respect of the one set of premises in Diamond Harbour Road, had they made any offer for compensation if demolition took place. In fact, as appeared in the proceedings the Corporation denied the right of the appellants to be compensated upon the ground that, with a certain exception, the buildings in question had not been erected before the 1st June, 1863. The relief sought in the suit was ranged under five heads.

The first asked for a declaration that the structures in dispute had been affixed before the first June, 1863. The second that the plaintiffs were entitled to compensation for the loss that they would suffer by their compulsory removal. The third, that the Corporation could not remove the structures until reasonable compensation had been paid. The fourth asked the Court to fix the amount of compensation. The fifth asked for an injunction restraining the Corporation from interfering with the structures until the compensation was paid.

The Corporation specifically denied the allegation that the structures in Garden Reach Road had been erected before the 1st June, 1863 : but as to Diamond Harbour Road they gave a more qualified denial : and admitted that part of them had been erected before that date. They disputed that the payment of compensation was a condition precedent to the removal of the fixtures, and they alleged that under S. 617 of the Calcutta Municipal Act the claim with regard to Diamond Harbour Road was bad in law, and that the suit could not be entertained by the Court.

The Subordinate Judge found in favour of the plaintiffs upon all the issues, and allowed compensation to the plaintiffs to the extent of 122,000 rupees. From his decree the respondents appealed to the High Court, and on the hearing of the appeal for the first time they admitted that all the fixtures in dispute had been erected before the 1st June, 1863 ; this admission having been made, the High Court reversed the decree of the Subordinate Judge, and dismissed the action with costs. From this judgment of the High Court the present appeal has been brought, seeking to restore in all particulars the decree of the Subordinate Judge.

The two questions of law that arise for consideration can be briefly disposed of.

The first relates to the true construction of S. 341. Their Lordships cannot find anything in this section which renders the assessment of compensation a condition precedent to the demolition of the structures. The words of the section,

which have already been quoted, only provide for compensation to the person "who suffers damage" by the removal. Until the removal is effected, no damage is in fact suffered at all, and there is but little advantage to be gained in considering, as counsel for the appellants desired their Lordships to do, the questions of compensation under the Lands Clauses Act of 1845, or the consideration of whether, in certain circumstances, assessment of compensation ought to be a necessary condition precedent to interference with property. It is sufficient that, in their Lordships' opinion, the words of the statute, construed as they stand, do not furnish any ground upon which to support the appellants' claim.

The next point is whether, under S. 617, the fixing of compensation in case of dispute is not placed in the Court of Small Causes, so that the question was not cognisable by the Court in which the present suit was instituted. Their Lordships think that, in this respect also, the judgment of the High Court was clearly correct. Omitting irrelevant and unnecessary words for the present purpose, S. 617 provides thus :—

"Where.....any Municipal authority.....is required bythis Act to pay.....compensation, the amount to be so paid, and, if necessary, the apportionment of the same, shall, in case of dispute, be determined..... by the Court of Small Causes."

Their Lordships find it quite impossible to understand how these words can be read so as to exclude the present dispute from their meaning; and indeed, counsel for the appellants did not contend that S. 617 read alone would bear that interpretation, but they suggested that the effect of Ss. 618 and 619 would be to show that S. 617 was not intended to apply to claims by a person against the municipality, but only by the municipality against other parties. Now Ss. 618 and 619 refer to the means to be taken in order to obtain payment and recovery of expenses or compensation awarded in 617. And in both of the sections reference is made to the claim being a claim enforceable only against a person, the words

“municipal authority” being omitted. The respondents say that in these sections, by virtue of certain interpretation clauses, the word “person” includes “municipal authority.” It may be so, but in their Lordship’s opinion it is quite unnecessary to decide the question. Even assuming the appellants’ view of Ss. 618 and 619 to be correct, it amounts to nothing more than this—that a special means of recovery of the amount awarded is given to the municipality which is not given to the individual, but from this it does not follow that the amount of compensation payable by the municipality to the individual, when in dispute, should not be fixed and determined under the earlier section. So far therefore as the suit sought relief under any but the first two heads, it was misconceived, and the whole of the expenses thereby occasioned were thrown away.

Their Lordships think, however, that, in the circumstances of the case, the appellants were entitled to ask for relief under the first two heads of their claim. When the proceedings were started, the Corporation was not prepared to admit the claim to compensation excepting in respect of a small portion of the premises in Diamond Harbour Road. Orders were outstanding for demolition. These orders might have been enforced at any moment, and, as the matter stood, they would have been enforced by the Corporation under an assertion that, except for a small amount, no compensation would be payable in respect of the damage done. This seriously affected the appellants’ right of property in these structures, and they were entitled to ask for a declaration in respect of this right under the Specific Relief Act (S. 42). It does not, of course, follow that the judge would be bound to give the declaration sought, but their Lordships think that the discretion of the Subordinate Judge would have been rightly exercised in granting such a declaration or in making an equivalent order. When, however, the matter proceeded to the Court of Appeal, the whole of this dispute was abandoned. There was no longer any controversy as to the date when the buildings were erected, and the Corporation made a plain

admission that they were all built before the 1st June, 1863. If the High Court had incorporated this admission into the actual form of their decree, instead of referring to it in the reasons which they gave, their judgment would have been correct in form, as it was, in their Lordships' opinion correct in substance, and the appellants would have had no ground for complaint. This, however, they omitted to do, and though the matter is in one sense a matter of technicality, yet, upon the whole, their Lordships think that the appellants are right in saying that the decree ought to be amended in this particular.

The Corporation have really raised no objection to this step being taken, but complain that this was not the substance of this appeal and did not form the real substance of the original suit. This matter their Lordships have taken into consideration in dealing with the costs of the proceedings; and the order which they will humbly advise His Majesty to make will be that the decree of the High Court be amended, by introducing an admission on the part of the Corporation that all the structures affected were erected before the 1st June, 1863 and that the appellants are entitled to be paid reasonable compensation by the Corporation for the loss which the appellants would suffer, if and when, such structures are compulsorily removed by the Corporation, and that so amended it be confirmed.

The Corporation will pay the appellants' costs of the action upon the footing that the only relief this action asked was that contained in clauses (A) and (B) of the prayer in the plaint.

The appellants will be ordered to pay the respondents' costs of all the other issues in the suit. Those costs will be set off *pro tanto* one against the other. The order of the Court of appeal as to costs will remain and no costs will be allowed of this appeal.

Appeal allowed in part.

Solicitor for the Appellants: *Watkins and Hunter.*

Solicitors for the Respondents: *Orr, Dignam and Co.*

BEFORE SIR ASUTOSH MOOKERJEE, KNIGHT, JUDGE, AND
MR. JUSTICE CUMING.

GUNENDRA MOHAN GHOSH and others

vs.

CORPORATION OF CALCUTTA.

House drain—Calcutta Municipal Act, (III B. C. of 1899), Sec. 286—Drain vesting in the Corporation, effect of.

The fact that the drain is a house drain, made by the owner of the adjoining premises for the outlet of water therefrom, does not exclude it from the operation of section 286 of the Calcutta Municipal Act.

When a road or a drain vests in a Municipality, the effect is not to confer the full proprietary right in the soil itself covered by the road or the drain on the Commissioners.

The property of the local authority concerned does not extend further than is necessary for the maintenance and user of the highway as a highway; subject to this qualification, the original owner's rights and property remain, and, if the highway ceases to be a highway, the owner becomes entitled to full and unabridged rights of ownership in the property.

Suit for declaration of title to land and for a perpetual injunction to restrain the defendant Corporation from interference with them in the exercise of their rights as proprietors.

The material facts and arguments appear from the judgment.

Babu Bhudeb Chandra Roy for the Appellant.

Babu Debendra Chandra Mullick for the Respondent.

The judgment of the Court was delivered by

MOOKERJEE, J.—This is an appeal by the plaintiffs in a suit for declaration of title to land and for a perpetual injunction to restrain the defendant Corporation from interference with them in the exercise of their rights as proprietors. The case for the plaintiffs is that the disputed land appertains to their premises 13/3 Circular Garden Reach Road, that their predecessor constructed a drain thereon for the outlet of water from the premises, and that on the 19th May, 1906, two of the officers of the Corporation had caused the land to be included within the boundaries of the adjoining street. The plaintiffs assert that such unlawful action on the part

of the Corporation had rendered it necessary for them to obtain a declaration of their title and injunction so as to secure them from future interference. The defendant Corporation resisted the claim on the ground that the land was not the property of the plaintiffs, that the drain was a part and parcel of the public street, and that it was in any event a public street within the meaning of section 336 of Act III of 1899 B. C. and had become vested in the Corporation and was their property. The Court of first instance found in favour of the plaintiffs on the question of title, and granted them a perpetual injunction. On appeal the Subordinate Judge reversed this decision and dismissed the suit. On second appeal to this Court, the case was remanded for re-consideration with special reference to an *amalnama* produced by the plaintiffs in proof of their alleged title to the land in controversy. The Subordinate Judge, after remand, has declared the title of the plaintiffs to the site of the drain, but has refused the injunction on the ground that as the drain had vested in the Corporation the right of the plaintiffs had been extinguished. The decree as drawn up is possibly not in exact conformity with the judgment. The plaintiffs have now appealed to this Court, and have pressed their claim for an injunction; there is no cross appeal by the Corporation upon the question of title. Consequently, we must proceed on the assumption that the land in suit covered by the drain appertains to the premises owned by the plaintiffs.

Section 286 of the Calcutta Municipal Act, 1899, provides that all public drains and all drains in, alongside or under any public street, whether made at the charge of the Municipal funds or otherwise, and all works, materials and things appertaining thereto, shall vest in the Corporation. The drain which passes over the land in suit is not a public drain within the meaning of this section, but is a drain alongside a public street. Section 3, clause 16, shows that the term drain includes a house-drain; consequently, the fact that the drain is a house-drain, made by the owner of the adjoining premises for the

outlet of water therefrom, does not exclude it from the operation of section 286. What then is the precise effect when, under section 286, a drain vests in the Corporation; does the Corporation thereby become the proprietor of the soil? The question is by no means of first impression. It has been ruled in a long series of decisions that when a road or a drain vests in a Municipality the effect is not to confer the full proprietary right in the soil itself covered by the road or the drain on the Commissioners: *Chairman of Naihati Municipality v. Kisorilal*¹; *Modhusudan v. Promodanath*²; *Chairman of the Howrah Municipality v. Kshetrakrishna*³; *Nihalchand v. Azmat Ali*⁴; *Nagar v. Municipality of Dhandhuka*⁵; though possibly a different view was taken in *Municipal Commissioners of Madras v. Sarangapani*.⁶ The principle applicable to cases of this character was elaborately examined by Sir V. Bhas-
hyam Ayyangar, J., in *Sundaram v. Municipal Council of Madura*⁷ which was followed in *Mada Thapu v. Secretary of State*⁸. It was pointed out that the legal effect of the statutory vesting of a street in a Municipality is not to transfer to the Municipality the ownership in the site or soil over which the street exists; the street, *qua* street, vests in the Municipality, that is, the surface and so much of the air-space above and so much of the soil below the surface as is reasonably necessary to enable the Municipality adequately to maintain and manage the street as a street, was vested in and belonged to the Municipality. This conclusion is in conformity with what has been recognised as settled law in England and America. In England, the effect of a statutory provision whereby a road or drain is made to vest in a County Council or County Borough, is not to transfer the free-hold to the authority concerned, but merely to vest in them the property in the surface of the street, road or drain and in so much of the actual soil below and air above as may reasonably be required for its control, protection and maintenance as a highway

¹ (1883) I. L. R. 13 Cal. 171.³ (1906) I. L. R. 33 Cal. 1290 (1303).⁵ (1887) I. L. R. 12 Bom. 490.⁷ (1901) I. L. R. 25 Mad. 635.² (1893) I. L. R. 20 Cal. 732.⁴ (1885) I. L. R. 7 All. 262.⁶ (1895) I. L. R. 19 Mad. 154.⁸ (1903) I. L. R. 27 Mad. 386.

or drain for the use of the public; to this extent only, the owner is divested of his property. The Court will not presume that the intention of the legislature was to confiscate private property and vest it in a public corporation without compensation granted to the proprietor. The reasonable inference, on the other hand, is that the right of the owner was intended to be abridged, only to the extent necessary for the discharge of the statutory duties imposed on the Corporation for the benefit of the public. Reference may usefully be made to the decision of the House of Lords in *Tunbridge Corporation v. Baird*¹ and of the Judicial Committee in *Sydney Municipal Council v. Young*². In the former case, Lord Halsbury held that the street *qua* street and so much of the actual soil of the street as might be necessary for the purpose of preserving, maintaining and using it as a street, had vested in the Corporation. Lord Herschell added that the vesting of the street vested in the Urban authority such property and such property only as was necessary for the control, protection, and maintenance of the street as a highway for public use. In the latter case, Lord Morris observed that the vesting of a street vested no property in the Municipality, beyond the surface of the street and such portion as might be absolutely necessarily incidental to the repairing and proper management of the street; it did not vest the soil or the land in them as owners, that is, the street-vested in them *qua* street and not as general property. The doctrine thus formulated has been recognised and applied in a variety of cases: *Bagshaw v. Buxton Local Board*³; *Rolls v. Saint George Vestry*⁴; *Wandsworth Board v. London and S. W. Ry. Co.*⁵; *Finchley Electric Light Co. v. Finchley Urban Council*⁶; *Coverdale v. Charleton*⁷; *Poplar Corporation v. Millwal Dock Co.*⁸; *Hyde Corporation v. Oldham*⁹; *Foley v. Dudley Corporation*¹⁰; *London and N. W. Ry. Co. v. Westminster*

¹ (1896) App. Cas. 434.

² (1875) 1 Ch. D. 220.

³ (1862) 31 L. J. Ch. 854.

⁴ (1878) 4 Q. B. D. 104.

⁵ (1900) 64 J. P. 596.

² (1898) App. Cas. 457.

⁴ (1880) 14 Ch. D. 785.

⁶ (1903) 1 Ch. 437.

⁸ (1904) 68 J. P. 339.

¹⁰ (1910) 1 K. B. 317.

*Corporation*¹, reversed², *Lodge H. C. Co. v. Wednesbury Corporation*³; *Wandsworth v. United Telephone Company*⁴; *Battersea Vestry v. County of London*⁵; *Mayor of Birkenhead v. L. N. W. Ry. Co.*⁶; *Lord Provost of Glasgow v. Glasgow S. W. Ry. Co.*⁷. No useful purpose would be served by a minute analysis of the varying circumstances of these decisions; but the general principle deducible may be summarised to be that the property of the local authority concerned does not extend further than is necessary for the maintenance and user of the highway as a highway, that, subject to this qualification, the original owner's rights and property remain, and that if the highway ceases to be a highway, the owner becomes entitled to full and unabridged rights of ownership in the property. A similar view has been adopted in the Courts of the United States, where the question of the precise interest taken by the Municipal Corporation has sometimes arisen in relation to title to underground minerals or alluvial accretions. The doctrine has been adopted that the property or estate vested in the Municipality is such only as is necessary for street purposes and is in trust for public uses and not for purposes of profit and emoluments; Dillon on Municipal Corporations, (1911), Vol. III page 1691: *Banks v. Ogden*⁸; *Thomas v. Hunt*⁹; *Donovan v. Albert*¹⁰; *City of Leadville v. Bohu Mining Co.*,¹¹. In some of these cases, reference was made with approval to the decision in *Tunbridge Wells v. Baird*¹², *Coverdale v. Charleton*¹³, *Wednesbury v. Lodge Holles Colliery Co.*,¹⁴ in support of the view that the intent and purpose of a Municipal Statute is to clothe the city in its Government capacity with the entire title to the streets, as such, for public use, and not for the profit or emolument of the city, in other words, the interest or estate thus conferred

¹ (1904) 1 Ch. 759.³ (1908) App. Cas. 323.⁵ (1899) 1 Ch. 474.⁷ (1895) App. Cas. 376.⁹ (1893) 134 M. O. 392; 32 L. R. A. 857.¹⁰ (1902) 11 N. D. 289; 58 L. R. A. 775; 95 Am. St. Rep. 720.¹¹ (1905) 37 Colo. 248; 8 L. R. A. N. S. 422.¹² (1896) App. Cas. 434.¹³ (1878) 4. Q. B. D. 104.¹⁴ (1907) 1 K. B. 78; (1908) App. Cas. 328² (1905) App. Cas. 426.⁴ (1884) 13 Q. B. D. 914.⁶ (1885) 15 Q. B. D. 572.⁸ (1867) 2 Wallace 57.

upon the Corporation is limited and not absolute, limited by the purposes which the legislature had in view when the Corporation was created.

In the light of these principles, it is obvious that there was no foundation for the claim of the Corporation to include the disputed land within the boundaries of Municipal land. The plaintiffs are accordingly entitled not merely to a declaration of their title, which has been unsuccessfully contested by the Corporation but also to a perpetual injunction. The injunction will restrain the Corporation, its officers and servants, from interfering with the exercise, by the plaintiffs, of their right of ownership in the disputed land, except in so far as such interference may reasonably be required for the control, protection and maintenance of the drain thereon for the use of the public.

The result is that this appeal is allowed and the decree of the Subordinate Judge set aside in so far as it dismisses the claim for a perpetual injunction. In supersession of the decree of the Subordinate Judge, a decree will be made to the following effect: "The title of the plaintiff is declared to the disputed land; it is further declared that the drain thereon has vested in the Municipality as a drain. The defendant Corporation its officers and servants are hereby perpetually restrained from interfering with the plaintiffs in the exercise of their rights as proprietors of the disputed land, except where such interference may reasonably be required for the control, protection and maintenance of the drain for the use of the public."

As the plaintiffs have substantially succeeded, they are entitled to their costs in all the Courts.

Appeal allowed.

PRIVY COUNCIL.

(ON APPEAL FROM THE HIGH COURT OF JUDICATURE
AT BOMBAY.)

PRESENT:—THE LORD CHANCELLOR (LORD BUCKMASTER),
VISCOUNT HALDANE and LORD ATKINSON.

THE MUNICIPAL CORPORATION OF THE CITY OF BOMBAY AND
ANOTHER..... Appellants.

Versus

THE G. I. P. RAILWAY COMPANY . . . Respondents.

*Railway—Public Street—Street vested in Municipality
—Power to carry a line of Railway across a street—Land
Acquisition Act, (Act I of 1894)—Indian Railways Act,
(Act IX of 1890).*

The Respondents constructed lines of railway across a street vested by statute in the appellant Municipal Corporation without obtaining their consent, and without taking proceedings under the Land Acquisition Act, 1894.

Held, that the provisions of the Land Acquisition Act, 1894, do not cut down the power conferred by s. 7 of the Indian Railways Act, 1890, as amended by s. 1 of Act IX of 1896, on a Railway Company to carry a line of railway across a street, subject to the control of their powers by the Governor-General in Council; and that the construction of the railway lines across the street was not an acquisition of immoveable property within the meaning of the said s. 7 and that the respondents had power under that section to lay lines without obtaining the consent of the appellant Corporation.

The Great Indian Peninsula Railway Company v. The Municipal Corporation of the City of Bombay, (1913) 38 Bom. 565 affirmed.

Appeal by special leave, from the judgment and decree of the High Court at Bombay (September 5, 1913) reversing the judgment and decree of Beaman, J. (February 17, 1913) at the trial.

The Respondents Company was incorporated by 12 and 13 Vict. C. 133; all their railways and works were transferred to and vested in the Secretary of State for India in Council.

By s. 289 of the City of Bombay Municipal Corporation Act (Bombay Act III of 1888) the streets in that city were vested in the appellant Corporation, and by further provisions

of that Act were under the control of the second appellant, the Municipal Commissioner.

In 1906 the respondents applied to the appellants for permission to construct railway lines on the level across a public street vested in the appellants under the abovementioned Act. The appellants sought to impose conditions with which the respondents were not willing to comply. Eventually the respondents intimated that they had power to carry out the proposed work under s. 7 of the Indian Railways Act, 1890, as amended by s. 1 of Act IX of 1896, and they subsequently proceeded to lay lines across the street.

The appellants instituted the suit, giving rise to this appeal, in the High Court claiming (1) a declaration that the respondent were not entitled to take possession of the land forming that part of the street upon which they had laid their lines without the permission of the appellants; (2) a declaration that unless and until the respondents should obtain such permission or acquire the land under the Land Acquisition Act, 1894, they were not entitled to retain possession thereof, or to maintain their lines thereon; (3) that the lines should be removed and the street made good, and (4) damages.

BEAMAN J., who tried the suit, decreed it and assessed the damages at Rs. 500. But, on appeal, that decree was reversed and the suit dismissed. The learned Judges, who heard the appeal, held that the respondents were authorised to lay their lines across the street by the Indian Railways Act, 1890, as amended, and that proceedings under the Land Acquisition Act, 1894, were neither necessary nor appropriate. For a full report of the judgments of the Courts in India, see *The Great Indian Peninsula Railway Company v. The Municipal Corporation of the City of Bombay*¹.

The Appellants, thereupon, appealed by special leave to His Majesty in Council. The appeal was argued in March 1916, but was re-argued by an order of the Board on 1916, July 31, and August 1.

¹ (1913) 33 Bom. 565.

P. O. Lawrence, K. C., and Sheldon, for the Appellants :

The street was vested in the appellant corporation by s. 289 of the City of Bombay Municipal Corporation Act, (Bombay Act III of 1888); they had at least a statutory freehold in the surface: *Mayor of Tunbridge Wells v. Baird*¹; *Foley's Trustees v. Dudley Corporation*.² Having regard to ss. 290 and 295, the fee simple in the soil probably vested in them, but the limited title is sufficient for the present argument. The respondents were trespassers. They had no power to lay their lines across the street without the appellant's consent. The power given by s. 7 of the Indian Railways Act, 1890, could not be exercised without proceeding under the Land Acquisition Act, 1894. There was power under that Act to acquire the right to cross the street, since by s. 3 (a) "land" is defined as including benefits to arise out of land. But even if under that Act a mere right to cross the street could not be acquired, the respondent could, and were bound to acquire that part of the street upon which their lines were laid. It is true that under s. 16 land acquired vests free from incumbrances and that this has been held to terminate any public rights over the land: *Manmatha Natha Mitter v. Secretary of State for India*³. Under ss. 40 and 41, however, terms can be imposed for the preservation of public rights, so far as is consistent with the railway crossing. The powers under ss. 13 and 14 of the Indian Railways Act, 1890, come into operation only after the railway is constructed. In England, a Railway crosses a highway only under express powers in its special Act; many of the authorities relied on in the judgments upon the appeal are therefore inapplicable.

Sir Robert Finlay, K. C. and T. T. Paine, for the Respondents.

The respondents had power to lay their rails across the street under s. 7 of the Indian Railways Act, 1890, as amended in 1896, subject to the payment of compensation

¹ (1896) A. C. 434

² (1909) W. N. 250.

³ (1897) 24 I. A. 177.

under s. 10. The safety and convenience of the public are adequately provided for by the powers given by ss. 13 and 14. The powers conferred upon railways by s. 7 are guarded by being made subject to the control of the Governor-General in Council. The right to carry the lines over the street was not an acquisition of immoveable property within the meaning of s. 7. A consideration of the machinery of the Land Acquisition Act, 1894, shows that it is not applicable to the acquisition of a right to carry a railway across a street. There is no power under that Act to acquire an incorporeal right: *Shyam Chunder Mardraj v. Secretary of State for India*¹ and *Great Western Railway v. Cheltenham Railway*.² If the land itself were acquired, there would be a cessation of all public rights: *Taylor v. Collector of Purnea*³; but ss. 13 and 14 of the Railway Act show that public rights survive. The appellants had not a title under which they could dispose of the land under the Act. *Municipal Corporation of Sydney v. Bourke*.⁴ There is no reported case in which the Land Acquisition Act has been applied to the acquisition by a railway company of a right to cross a highway.

P. O. Lawrence, K. C., replied.

Their Lordships delivered the following Judgment:—

VISCOUNT HALDANE:—The point to be decided on this appeal is whether the respondents in constructing certain lines of railway on the level across the Sewri-Koliwada Road in Bombay, being a public street there under the control of the Municipal Commissioner for the City, have the right to do so without either obtaining permission from the appellant Corporation or acquiring under “The Land Acquisition Act, 1894,” so much of the street as is occupied by the level crossing. Beaman, J., who tried the action in which the question arose, gave judgment for the appellants, and ordered the restoration of the land with damages. The High Court at Bombay reversed this judgment and dismissed the action.

¹ (1906) 35 Cal. 525.

² (1884) 9 A C. 787.

³ (1889) 14 Cal. 423.

⁴ , ,

The question now to be decided is whether the respondents had the right they claimed by virtue of "The Indian Railways Act, 1890" and to answer this question it is necessary to examine the provisions of that Act. The scheme of the Act differs from that of the general Railway Acts in this country, the sections of which are made to apply only if they are brought into operation by a special Act authorising the construction and control of the railway. The Indian Act places the exercise of the powers conferred by it under the control of the executive in the person of the Governor-General in Council, who thus takes the place of Parliament in this country in authorising such powers to be exercised. Section 7 enacts that subject to the provisions of the Act and in the case of immoveable property not belonging to the railway administration, to the provisions of any enactment for the time being in force for the acquisition of land for public purposes and for companies and subject also, in the case of a railway company, to the provisions of a contract between the Company and the Government, a railway administration may, for the purpose of constructing a railway, or the accommodation or other works connected therewith, among other things, "make or construct in, upon, across, under or over any lands, or any streets, hills, valleys, roads, railways or tramways, such arches, tunnels, culverts, embankments, aqueducts, bridges, roads, lines of railway," &c. (the words "lines of railway" being added by section 1 of Act IX of 1896), as the railway administration thinks proper. The railway administration is, by s. 10, to do as little damage as possible in the exercise of these powers, and compensation is to be paid for any damage caused by the exercise thereof. By s. 11 the railway administration is to make and maintain, for the accommodation of the owners and occupiers of land adjoining the railway, among other things convenient crossings and passages over the railway. By s. 13 the Governor-General may require fences to be provided, and also suitable gates, &c., at places where the railway crosses a public road on the level, and may require the railway administration to

employ persons to open and shut such gates. By s. 14 where the railway has been made across a public road on the level, the Governor-General may, if it appears to him to be necessary for the public safety, require the construction of a bridge or arch or other works for diminishing danger. By s. 104 railway servants commit a punishable offence if they keep a level crossing closed against the public.

The railway, which was duly authorised by the Governor-General, has, as already stated, been made to cross on the level a road in the area of Bombay City. This road is vested in the appellants under "The City of Bombay Municipal Act, 1888," and the effect of such vesting is that, like an Urban Authority under the Public Health Act in this country, they have the surface and a portion of the sub-soil vested in them in such a fashion as to enable them to bring an action for trespass.

The real point that arises is whether under the words quoted from s. 7 of the Indian Railways Act, which make the powers conferred by that section subject to any enactment in force for the acquisition of land for public purposes and for companies, it was necessary for the respondent before making the crossing to comply with the provisions of the Act which was then in force, "The Land Acquisition Act, 1894," passed four years after the Indian Railways Act. The Land Acquisition Act by s. 3 defines land as including benefits to arise out of land and a person interested as including a person interested in an easement affecting the land. The early parts of the Act (II to VI inclusive) enable the Local Government to acquire land compulsorily for public purposes. When the Collector, who is the official designated to do so, has ascertained the compensation to be allowed and the proper apportionment among the persons interested, he may take possession and then, under section 16, the land is to vest absolutely in the Government free from all encumbrances. It is conceded that "encumbrance" includes a right of passage. The taking possession by the Collector would, therefore, if the Act

applies to the present case, extinguish the rights of the public to cross the railway by the road in controversy. Moreover, none of the provisions relating to compensation cover the case of members of the public, who naturally do not come within the provision for compensation contained in section 11.

Part VII of the Act enables the Local Government to authorise companies generally to acquire land for useful public purposes by availing themselves of the provisions in the earlier parts, but section 39 provides that this power shall not be put in force unless the previous assent of the Local Government has been obtained, and unless an agreement has been entered into by the company with the Secretary of State for India.

It appears to their Lordships that the provisions of this Act are not so expressed as to cut down the power conferred by s. 7 of the Indian Railways Act on a railway company in India to carry a line of railway across a street, subject to the control of their powers by the Governor-General. The latter Act in such a case contemplates the right of the public being kept alive. Section 13 enables the Governor-General to direct the provision by the railway administration of suitable gates, bars, &c., where the railway crosses a public road on the level. Section 14 gives him power to require the provision of bridges or arches where he deems it necessary, or such other works as will remove or diminish the danger arising from the level crossing. These sections show that the right of the public to cross the railway so laid on the level is contemplated as continuing. Section 104 makes it a criminal offence to keep the level crossing closed against the public, and raises the same inference. The Land Acquisition Act does not repeal these sections, and it appears to their Lordships that the taking of the railway on the level across a public highway is accordingly not an acquisition of immoveable property within the meaning of this Act. To hold otherwise would be to hold that the right of the public to cross was extinguished under s. 16, or again, that when one railway crosses another a

possibility expressly contemplated by s. 7 of the Indian Railways Act, the second was bound to purchase part of the permanent way of the first, conclusions which their Lordships regard as inadmissible. It may well be that when a railway company takes land for a station or for a tunnel or a cutting, the provisions of the Act apply, on the ground that this is an acquisition of land. But the sections in the Indian Railways Act to which they have referred in their opinion show that what has been done in this case is excluded by that Act from possessing this character, notwithstanding that theoretically a benefit arising out of land, within the words of section 3 of the other Act, might be in a different context be held to have been acquired. This has probably been done because the interference with the surface is small and the public advantage is great. They think that it was intended by the Indian Railways Act to give the Governor-General power to authorise the crossing, in place of leaving the conferring of such a power to a special statute as would be the case in England where the General Lands and Railways Clauses Acts do not authorise the compulsory taking of mere easements. The Governor-General has, under section 10 and other sections, ample power to impose conditions for compensation and for the protection of the public.

For these reasons their Lordships will humbly advise His Majesty that the judgment of the High Court at Bombay was right, and that this appeal should be dismissed with costs.

Appeal dismissed.

Solicitors for the Appellants: *Cameron, Kemm & Co.*

Solicitors for the Respondents: *White, Borett and Black.*

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IN THE KING'S BENCH DIVISION.

WEBB.....Appellant

vs.

BAKER.....Respondent.

Public Health—Unsound Food—Rejection under contract of Article supplied by Vendor—Obligation of Vendor to remove article within seven days—" Possession " of Article by vendor after rejection—Public Health Act, 1875 (38 & 39 Vict. c. 55), ss. 116, 117.

By a contract made between the appellant and poor law guardians the appellant undertook to supply goods to, and deliver them at, a workhouse. The goods were, as regards quality, to be such as the guardians approved. Rejected goods were to be removed by, and at the expense of, the appellant within seven days after notice to him of their rejection. In purported fulfilment of an order given by the guardians under the contract the appellant delivered at the workhouse a quantity of rabbits which were intended for the food of man, but which were in fact unsound and unfit for the food of man. The guardians gave immediate notice of rejection to the appellant, and on the same day the rabbits were seized by an inspector of nuisances and duly condemned and ordered to be destroyed. The appellant was convicted under s. 117 of the Public Health Act, 1875, for having unlawfully deposited for the purpose of sale rabbits which were intended for the food of man and which when in his possession had been lawfully seized and condemned:—

Held, without deciding whether the rabbits had been deposited by the appellant for the purpose of sale, that the conviction must be quashed inasmuch as the rabbits at the time of their seizure were not in his possession within the meaning of that term in s. 117.

The word "possession" in s. 117 must be construed in a popular and not in a narrow sense.

Case stated by justices for Middlesex sitting at Brentford.

The appellant was charged under the Public Health Act, 1875¹ by the respondent with having, on October 13, 1915,

¹ Public Health Act, 1875, s. 116: "Any medical officer of health or inspector of nuisances may at all reasonable times inspect and examine any animal carcase meat..... exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale, and intended for the food of man.....: and if any such animal carcase meat..... appears to such medical officer or inspector to be diseased or unsound or unwholesome or unfit for the food of man he may seize and carry away the same..... in order to have the same dealt with by a justice."

Section 117: "If it appears to the justice that any animal carcase meat....so seized is diseased or unsound or unwholesome or unfit for the food of man, he shall condemn the same, and order it to be destroyed or so disposed of as to prevent it from being exposed for sale or used for the food of man; and the person to whom the same belongs or did belong at the time of exposure for sale or in whose possession or on whose premises the same was found, shall be liable to a penalty not exceeding twenty pounds for every animal carcase.... so condemned, or, at the discretion of the justice, without the infliction of a fine, to imprisonment for a term of not more than three months....."

at the Brentford Union Workhouse, unlawfully deposited for the purpose of sale twenty-two rabbits intended for the food of man, then belonging to him and which were when in his possession lawfully seized by the inspector of nuisances and afterwards were duly adjudged to be unsound and unfit for the food of man and were condemned and ordered to be destroyed.

The appellant, a provision merchant in the City of London, entered into a contract on September 29, 1915, with the Brentford Guardians for the supply of rabbits for the half-year ending March 31, 1916. By that contract the rabbits were to be best English wild rabbits and at the price therein mentioned. The following were the material clauses of the conditions annexed to the contract:—

“2. The goods or materials to be supplied under this contract are to be of the quality or sort before mentioned, and as such the guardians or their officers duly authorised shall approve.

“3. The goods or materials are to be delivered at the workhouse.....or other institutions of the union, free of charge to the guardians, and at the contractor's risk, in such quantities or numbers, at such times and in such manner as the guardians or their officers duly authorised shall from time to time order.

“4. Rejected goods or materials are to be removed by and at the expense of the contractor within seven days after notice shall have been given him of the rejection. If not so taken away, the guardians may cause the goods or materials to be removed, and charge the contractor with all expenses incurred in such removal.”

In pursuance of an order given by the guardians to the appellant under the contract, twenty-two rabbits, skinned and packed in a wooden case, were delivered at the Brentford Workhouse, Isleworth, on October 13, 1915, at 10-17 a.m., and on the case being opened immediately on its arrival in the presence of the master of the workhouse the rabbits were found by him to be in a bad and stinking condition. The

master thereupon telephoned to the appellant's manager, informing of the condition of the rabbits, stating that he must reject them under the contract, and asking whether the appellant would send for them or whether he (the master) should have them destroyed. The manager would neither agree to send for the rabbits nor to have them destroyed, as he asserted that they were quite fresh and that he and the appellant had seen them packed on the previous afternoon. The master reported the matter to the guardians, who were then sitting, and received their instructions to call in the district medical officer of health. At 12-15 p.m. on the same day, the medical officer and the inspector of nuisances inspected the rabbits at the workhouse and found them to be in such an advanced state of putrefaction and so tainted and affected by maggots that in the medical officer's opinion they must have been unsound and unfit for the food of man on the previous afternoon. The inspector of nuisances seized the rabbits and took them on the same day before a Justice of the Peace, who adjudged them to be unsound and unfit for the food of man and ordered them to be destroyed. Later on the same day the master of the workhouse told the appellant over the telephone what had happened, when the appellant said he could not understand how the rabbits could be in the condition alleged as he had seen them packed on the day previous, but that possibly they might have been by a fire at the railway station. The appellant and one witness gave evidence that the rabbits had been skinned and despatched by the appellant from the Central Market in the City of London at 4-30 p.m. on October 12, 1915, by the London and South Western Railway to Brentford Workhouse, but that by mistake the case containing them was first taken to Liverpool Street Station and then to Waterloo. The appellant did not call evidence to prove that the rabbits were not deposited by him at the Workhouse for the purpose of sale or were not intended for the food of man.

The Justices found the following facts: (a) That the rabbits were deposited at the Brentford Workhouse by the

appellant for the purpose of sale and intended for the food of man, and were then unsound and unfit for the food of man; (b) that when seized by the inspector of nuisances the rabbits were in the appellant's possession; and (c) that the rabbits were duly seized by the inspector of nuisances and were lawfully condemned and ordered to be destroyed as being unsound and unfit for the food of man. On these findings the Justices convicted the appellant and imposed a fine.

The questions for the opinion of the Court were whether there was any evidence that the rabbits had been deposited for sale by the appellant at the Workhouse, and whether there was any evidence of an offence under the Public Health Acts.

Macmorran, K. C. (Naldrett with him), for the appellant. No offence was committed by the appellant under s. 117 unless there was evidence, first, that he deposited the rabbits for the purpose of sale, and, secondly, that they were in his possession at the time they were seized. In this case there was no evidence on either point to justify a conviction. First, the rabbits were not deposited by the appellant for the purpose of sale in as much as they had already been sold. The property in, and possession of, the rabbits passed to the guardians when they were delivered to the Railway Company for carriage to Brentford Workhouse. Secondly, the rabbits were not in the possession of the appellant at the material time. "Possession" in s. 117 means physical possession. In the Scottish case of *Cairns v. Linton*¹ it was decided that a farmer in Perthshire who despatched to a consignee in Edinburgh the carcase of a bull which on examination in Edinburgh was found to be unfit for human food was not in possession of the carcase in Edinburgh either actually or constructively within the meaning of a local Act containing a section substantially the same as s. 117 of the Public Health Act, 1875. He also referred to *Rendell v. Hemingway*² and *Bothamley v. Jolly*.³

¹ (1889) 16 R. (J.) 81.

² (1898) 14 Times L.R. 456.

³ (1915) 3 K. B. 425.

Disturnal, K. C. (*Morle* with him), for the respondent. The conviction was right inasmuch as the rabbits were deposited for the purpose of sale by the appellant and were in his possession at the time of their seizure. "Deposit for the purpose of sale" is a perfectly general expression and is not a term of art. It simply means placing goods in some place in contemplation of a sale. In this case the rabbits were brought to the workhouse by the appellant, and it was for the guardians to say whether or not they complied with the requirements of the contract. They were brought there for the purpose of being sold to the guardians. He cited *Williams v. Allen*¹ and *Young v. Grattridge*².

Secondly, the rabbits remained in the possession of the appellant. By s. 36 of the Sale of Goods Act, 1893, the buyer, unless he otherwise agrees, is not bound to return rejected goods; it is sufficient if he intimates to the seller that he refuses to accept them. In this case the rabbits were rejected under clause 4 of the conditions annexed to the contract, intimation thereof was given to the appellant, and therefore the legal position is that the property in, and the possession of, the rabbits remained with him. The mere fact that under clause 4 the rabbits might remain for a time at the workhouse after their rejection does not affect the legal liability of the appellant, as the rabbits till their removal were held by the guardians subject to his control or for him or on his behalf: See s. 1, *Sub-sec. 2*, of the Factors Act, 1889. That was the position in the case of *Bull v. Lord*³ where the owner of unsound meat was convicted of having it in his possession although it was physically in the possession of another person. On the intimation to the appellant that the guardians had rejected the rabbits, they were at his risk, and if any unauthorized person had removed them from the workhouse the guardians could not have maintained trover.

Macmorran, K. C., in reply. To satisfy s. 117, which, it must be remembered, is highly penal, there must be deposit

¹ (1916) 1 K. B. 425. ² (1868) L. R. 4 Q. B. 166. ³ (1908) 9 L. G. R. 829.

for the purpose of sale at the place of deposit. Here the sale was already concluded when the goods were despatched: see *Lambert v. Rowe*¹. As to "possession", that word is to be interpreted in a popular sense, and it means physical possession. In this case the rabbits were in the physical possession of the guardians. *Firth v. McPhail*² was also referred to.

VISCOUNT READING, C. J.—By a contract in writing which contained certain conditions, the appellant contracted to supply the Brentford guardians with best English wild rabbits which were intended for the food of man. It is clear that what was sold under the contract were not specific goods, but only goods which were to be of a particular description and, of course, were to be of merchantable quality. On October 13, 1915, in purported fulfilment of the contract, twenty-two rabbits were delivered at the workhouse, but as they were found to be in an advanced state of putrefaction the guardians immediately communicated with the appellant who was the vendor under the contract, and rejected them. Upon the evidence we must take it that the rabbits were unfit for human food when they were sent in pursuance of the contract. The guardians called in the inspector of nuisances, and under the powers contained in ss. 116 and 117 of the Public Health Act, 1875, the rabbits were condemned and destroyed. Thereupon a summons was issued against the appellant for a contravention of s. 117 for having unlawfully deposited for the purpose of sale the twenty-two rabbits which were intended for the food of man but were unfit for that purpose, and which were seized when in his possession.

Two points have been raised—first, whether there was evidence to justify the finding by the justices that the rabbits were deposited for the purpose of sale by the appellant on the date in question, and, secondly, whether, when the rabbits

¹ (1914) 1 K. B. 38.

² (1905) 2 K. B. 300.

were seized by the inspector of nuisances, they were in the possession of the appellant. Both questions must be answered as the justices answered them if the conviction is to be affirmed. If we come to the conclusion that the rabbits were not deposited by the appellant for the purpose of sale within the meaning of the statute, the conviction cannot stand, notwithstanding that the rabbits might be in the possession of the appellant at the material time, and, equally, if we hold that the rabbits were deposited for the purpose of sale by the appellant but were not in his possession at the material time the conviction cannot stand. We have had an interesting argument on both points, but, having regard to the view we take on the second point, it becomes unnecessary to decide, and we do not propose to decide, the first point.

Upon the second point we have come to the conclusion that there was no evidence to justify the finding that the rabbits were at the material time in the possession of the appellant. There is no doubt considerable force in the contention, based upon a strict and somewhat narrow construction of the word "possession," that there was sufficient evidence to support the justices' finding; but in our view the word "possession" in s. 117 should be given a popular, and not a narrow, construction, and, giving the word that construction, we cannot say that the rabbits were in the possession of the appellant within s. 117 during the period that they remained, under clause 4 of the conditions of the contract, with the guardians after their rejection, with merely an obligation on the appellant to remove them within that period. That being so, the conviction cannot stand whatever might be our view upon the other point.

Ridley and Low JJ. concurred.

Appeal allowed.

Solicitor for appellant: *Wilfred Firth, Brentford.*

Solicitor for respondent: *Charles Robinson, Hounslow.*

BOMBAY HIGH COURT.

BEFORE MR. JUSTICE BATCHELOR AND MR. JUSTICE SHAH.
EMPEROR

Vs.

KAREEM RANJAN KHOJI.*

District Municipalities Act (Bom. Act III of 1901), Sec. 96 (5)—Notice of new buildings—Permission once granted cannot be revoked.

The accused having obtained from the Managing Committee of the Municipality permission to build his house with a certain gallery, began the building. While the building was under construction, he received an order from the Municipality asking him to set it back by omitting the gallery. The accused, notwithstanding the order, proceeded with his building in compliance with the permission first granted. He was convicted under s. 96, cl. (5) of the District Municipalities Act, 1901. On an application to the High Court :—

Held, reversing the conviction, that the accused was not guilty of an offence under s. 96 of the Act.

The house-site in question belonged first to one Ratansi, who obtained permission from the Thana Municipality to build a house on old foundations on the 25th May 1915. He sold the site to the accused on the 1st December. On the 10th of the same month he applied to the Municipality for permission to add a gallery to the proposed building. The Managing Committee of the Municipality granted the required permission on the 12th January 1916.

While the construction of the building was going on, the Municipality, in virtue of a resolution passed by the general body, served a notice to the accused on the 26th March 1916, asking him to set his building back by one foot and ten inches, thus compelling him to omit the gallery.

The accused, notwithstanding the notice, proceeded with the gallery. He was, thereupon, tried for an offence under s. 96, cl. 5 of the Bombay District Municipalities Act, 1901, and convicted and sentenced to pay a fine of Rs. 60.

The accused applied to the High Court.

W. B. Pradhan, for the accused.

Jayakar, with *B. V. Desai*, for the Municipality.

* Criminal Revision Application No. 281 of 1916, from conviction and sentence passed by Manilal Ajitrai, Sub-Divisional Magistrate, F. C. Thana.

BACHELOR J.—This case which falls under the Bombay District Municipalities Act (III of 1901) is, I think, best decided on its own facts without any attempt to lay down any general proposition from the complicated intricacies of the statute. Now the simple facts which we have before us here are these. On the 12th January 1916, the present applicant obtained from the Managing Committee of the Municipality a perfectly valid and legal permission to build his house with a certain gallery. He consequently began the building. On the 26th March following, there was communicated to him from the Municipality an order that the previous permission was revoked and that his building must be so modified as to leave a certain set-back to the detriment or the omission of his gallery. This order was the result of a resolution of the general body on the preceding day, the 25th of March. The applicant, notwithstanding this last-mentioned order, proceeded with his building in compliance with the permission of the 12th of January. Because he did so, he has been convicted under s. 96, cl. (5) of the Bombay District Municipalities Act and has been sentenced to a fine of Rs. 60.

I am clearly of opinion that on these facts the applicant was not guilty of any offence under the section. As I have said, the permission accorded to him by the managing Committee in January was entirely within the powers of the Managing Committee and was lawful and valid. It would be extremely inconvenient in practice if a lawful permission accorded by the Managing Committee was subject at any future date to be cancelled by the general body. For it is plain that no citizen would then have notice as to when he might safely begin his building. If, however, words clearly importing such a power of subsequently overriding the permission were discoverable in the statute, there would be no alternative but to give effect to them. No such words are, however, discoverable. On the contrary, the whole tenor of s. 96 of the Act, with its various sub-sections and clauses and sub-clauses, seems to me to show that what is contemplated

is an application by the citizen, a period of time during which the Municipality should consider the merits of that application and then the issue of orders once and for all. Sub-section 5, it is to be observed, speaks of "such legal orders of the Municipality as may be issued under this section." It does not say such legal orders as may from time to time be issued under the section, and any such latitude of construction would, in my opinion, render these sections unworkable in practice. I am of opinion, therefore, that both the terms of the statute and the reason of the thing are in favour of the present applicant.

I would, therefore, make the rule absolute, set aside the conviction, order the applicant to be acquitted and discharged and direct that the fine, if paid by him, be refunded to him.

SHAH J.—I agree.

Rule made absolute.

MADRAS HIGH COURT.

BEFORE MR. JUSTICE SADASIVA AIYAR.

PUBLIC PROSECUTOR v. ATTAWAR RAMA RAO.*

Madras District Municipalities Act, S. 222—Letting offensive water flow—No side drains—Offence committed.

The occupier of a land in a Municipal area can be convicted under section 222 of the District Municipalities Act, for letting offensive water flow into the street, although no side drains have been provided for the street.

Queen-Empress v. Sevadappayyar, [1891] 15 M. 91; *Emperor v. Mayandi Konan*, [1906] 30 M. 220 followed.

Appeal under section 417 of the Code of Criminal Procedure 1898, against the acquittal of the aforesaid accused by the Court of the 2nd class Bench of Magistrates, Mangalore, in Bench Case No. 133 of 1916.

Mr. K. P. Lakshmana Rao for accused.

SADASIVA AIYAR, J.—The majority of the Bench have acquitted the accused (respondent in this appeal preferred by the Government) evidently on the view that when there are no side drains provided for a street, the occupier of a land in a

* Criminal Appeal No. 680 of 1916.

Municipal area cannot be convicted under section 222 of the District Municipalities Act even if he lets offensive water or other liquid matter so as to flow out of the land into the street.

Their above view is clearly erroneous; see *Queen Empress v. Sevadapayyar*¹ and *Emperor v. Mayandi Konan*.²

The order of acquittal is reversed and the accused is directed to be retried, as no evidence has been let in on the side of the accused and no findings of fact seem to have been arrived at by the Bench before they disposed of the case on the above view.

ALLAHABAD HIGH COURT.

BEFORE MR. JUSTICE KNOX.

PIARE LAL

versus

EMPEROR.*

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United Provinces Municipalities Act (II of 1916), section 274—Occupier.

An "occupier", within the meaning of section 274 of the United Provinces Municipalities Act, is a person who takes or holds or is in actual possession of a piece of property such as house or land. Hence, where a person who was held responsible for the upkeep and cleanliness of a temple by the former Adhikari is not an "occupier" of the temple; and his conviction for throwing rubbish on the street is illegal.

The Municipal Act is a penal Act and must be strictly constructed in favour of the subject.

Criminal Revision from an order of G. R. Dampier, Esq., District Magistrate of Muttra.

Gulzari Lal, for the applicant.

R. Malcomson (Assistant Government Advocate), for the Crown.

The following judgment was delivered by

KNOX, J.—One Piare Lal has been convicted of an offence under section 274 of the United Provinces Municipalities Act of 1916 and sentenced to pay a fine of Rs. 20. He has applied to this court in revision and contends that he is not an occupier of the building from which rubbish has been thrown into

¹ (1891) 15 M. 91.

* Cr. Rev. No. 949 of 1916.

² (1906) 30 M. 220.

one of the streets of Muttra. The District Magistrate who upheld the order of the trying Magistrate in his judgment says that, "it is clear to me from the evidence on this file and connected municipal files that the late Adhikari held Piare Lal responsible for the upkeep and cleanliness of the temple and all work connected with it." This, in my opinion, does not bring Piare Lal within the term "occupier" as used in the Act above mentioned. In section 2, clause (11) of the Act, a definition is given of the word "occupier" and we are told that it includes an owner in actual occupation of his own land or building. Piare Lal certainly cannot come under this meaning of the word "occupier". The definition, however, is not exhaustive, and it remains to be seen whether this word cannot be properly held to include a person holding the position of Piare Lal. No definition from any legal Dictionary has been placed before me, and I have had to resort to the meaning of the word as ordinarily used in the English language. For this perhaps Mr. Murray is the best authority, and on consulting his Dictionary, I find that "occupier" is a person who takes or holds or is in actual possession of a piece of property such as house or land. This is the only meaning of the several meanings given in the Dictionary which can in any way be applied to the present case. Even if the word occupier could be held to cover Piare Lal because he is responsible for the upkeep and cleanliness of the temple and all work connected with it, all that we have on the record is that the late Adhikari held Piare Lal responsible for this. There is a present Adhikari named Chhagan Lal. There is nothing in the judgment to show that Chhagan Lal holds Piare Lal responsible for these several works. I am not satisfied that Piare Lal can in any sense be considered to be the "occupier" of this temple. The Municipal Act is a penal Act and must be strictly construed in favour of the subject. The offence of which Piare Lal has been convicted is not established by the evidence. I set aside the conviction and order passed under section 274 of the Municipalities Act. The fine, if paid, will be refunded.

Conviction quashed.

CALCUTTA HIGH COURT.

BEFORE MR. JUSTICE D. CHATTERJEE & MR. JUSTICE
WALMSLEY.

MOHAMMED SOLEMAN.....Defendant, (Appellant.)

versus

RAGHUNATH DUTTA,.....Plaintiff (Respondent.)*

*Bengal Municipal Act (III B.C., of 1884), Sec. 361—
Sale of holding, when owner unknown, for arrears of rates—
Purchaser's title, if superior to mortgagee's.*

The purchaser of a holding sold under section 361 of the Bengal Municipal Act does not acquire it free from incumbrances, there being no provision in the Act creating any charge or other preferential right in favour of the purchaser.

This was an appeal preferred on 31st March 1915, against the decree of Babu Purna Chandra Bose, Officiating Subordinate Judge, 2nd Court of Zillah 24-Perganas, dated 22nd February 1915.

The facts of the case out of which the appeal arose were as follows :—

Defendant No. 1, as owner of a holding within the Maniktola Municipality, took a loan of Rs. 5,500 from two persons on a mortgage of the holding, dated the 25th August 1911, and the plaintiff as assignee of the mortgagee's interest instituted the present suit to enforce it. Defendant No. 2 was made party Defendant, on the ground of an alleged purchase of the holding at a sale held under section 361 of the Bengal Municipal Act on the 9th May 1914, at the instance of the Maniktola Municipality. The defendant No. 2 resisted the plaintiff's claim mainly on the ground his purchase gave him a title free from the mortgage.

The sale under section 361 of the Bengal Municipal Act took place in the following circumstances: The holding was recorded in the Municipal registers as the property of one

* Appeal from original decree in No. 106 of 1915.

Chand Bibi, a former owner, from whom defendant No. 1 was proved to have derived his title. Neither defendant No. 1 nor intervening owners of the holding had got their names recorded in the Municipal registers and 10 quarter's taxes up to the quarter ending 30th June 1914, having fallen into arrears, the Municipality, which was unable to trace the owner, had the holding put up for sale under section 361 of the Bengal Municipality Act. At this sale, the defendant No. 2's bid of Rs. 1,500 was accepted and he became the purchaser.

The subordinate judge overruled the defendant No. 2's objection on the ground that unlike section 228 of the Calcutta Municipal Act, the Bengal Municipal Act did not make arrears of rates a first charge on the holding and in the absence of any provision in that Act to show that a holding sold under section 361 of that Act passes to the purchaser free from incumbrances, the mortgagee's rights over the holding subsisted and he accordingly decreed his suit as claimed.

The defendant No. 2 preferred this appeal.

Babu Mohendra N. Ray (with Mv. Wahed Hoossein) for the appellant.

Read section 361 of the Bengal Municipal Act and submitted that the section by its terms authorised the sale of the holding and not merely the right, title and interest of the owner. The mortgagee was *pro tanto* owner. The arrears had been falling due from before the mortgage.

Babu Ram Ch. Majumdar (with Babu Nagendra Nath Ghose) for the Respondent.

Referred to sections 120, 121, 122, 124, 127, 128 and 129 of the Act, and drew particular attention to the provision in section 361, which gives persons interested in the property, who may pay off the arrears and prevent the sale, only a personal remedy against the owner. Also Aiyangar's Law of Municipal Corporations, Vol. III, p. 142.

The judgment of the Court was as follows :—

In this case a certain holding in the Maniktola Municipality belonged to one Chand Bibi. Chand Bibi in 1910 sold it to one Asutosh De, who in August, 1911, sold it to defendant No. 1. On the same date, defendant No. 1 mortgaged the holding to a certain person who again assigned his mortgage rights to the plaintiff in 1912. In 1914 this holding was sold by the Maniktola Municipality for arrears of rates due from September, 1910, for ten carteries and the property was purchased by defendant No. 2 in 1915. Upon the present suit being brought on the mortgage in 1912 by the plaintiff, defendant No. 2 contends that he has purchased the holding devoid of all encumbrances and that the plaintiff is not entitled to sell the same. The title of defendant No. 2 is derived under a sale under section 361 of the Mofussil Municipal Act. That section authorises the Municipal Commissioners to sell a holding in arrears under certain circumstances and provides that any person may pay the amount due at any time before the completion of the sale and may recover such amount by a suit in a Court of competent jurisdiction from any person beneficially interested in such property. There is, within the four corners of the Act, no provision for creating any charge on the property for arrears of rates and we do not think that any such charge can be presumed from the mere fact that the holding is directed to be sold. When the sale is under a statute, the rights of the purchaser must be governed by the statute and here the statute does not create any charge or other preferential right in favour of the purchaser. Defendant No. 2, therefore, is not entitled to claim any priority over the plaintiff whose mortgage is clearly before his purchase.

This appeal is dismissed with costs.

Appeal dismissed.

IN THE MADRAS HIGH COURT.

PRESENT :

THE HONOURABLE MR. JUSTICE AYLING

AND

THE HONOURABLE MR. JUSTICE SESHAGIRI AIYAR.

Referred Case No. 6 of 1916.

THE HON'BLE MR. JUSTICE C. G. SPENCER, I.C.S., Appellant.

THE PRESIDENT, CORPORATION OF MADRAS.....RESPONDENT.

Case stated under section 176 of Act III of 1904 by the 2nd and 3rd Presidency Magistrates, Madras, in Appeal Petition No. 8707 of 1916*.

* Under section 176 of the Madras City Municipal Act, III of 1904, we have the honour to submit the following case for the decision of the High Court :

The Honourable Mr. Justice C. G. Spencer, I.C.S., was assessed to a profession tax of Rs. 125 by the Madras Corporation for the second half of the year 1915-16 and was served with a notice of demand dated 18-12-'15. He did not pay the tax but returned the demand notice to the President with a letter dated 23-12-'15 stating that the demand notice was not correctly made out, that his salary from 1st December to the end of the half-year would be Rs. 883-5-4 gross per mensem or net Rs. 676-1-6 and that he intended to be absent from Madras till nearly the end of July, 1916. Although the notice of demand had expressly stated that no application for revision would be admitted unless the amount of tax was prepaid as required by section 174 of the Act, he did not prepay the tax. In the circumstances, the President was not bound to take any action on the said letter and he could have summarily rejected it on the ground that the tax had not been prepaid. The Revenue Officer of the Corporation, however, thought fit to reply to the letter and in his reply dated 7-1-'16, he explained how Mr. Spencer was liable to the tax. There was then some correspondence between the parties which apparently ended in Mr. Spencer asking the President to treat his letter dated 23rd December, 1915 as an application under section 174 of the Act and to dispose of it under section 172. As the tax had not been paid and as the fifteen days' time allowed by section 174 clause (a) had already expired, the President in his letter dated 4-9-'16 refused to comply with Mr. Spencer's request. Mr. Spencer thereupon filed in this Court on 7-9-'16 an application purporting to be an appeal under section 175 of the Act against the President's refusal to hear and decide his application under section 172. In this appeal, he contended that he was not liable to be assessed for the half-year in question, as he was not exercising the duties of his office in Madras for a period of 60 days. This contention was materially different from that set forth in his letter dated 23-12-'15 to the President which at best was an application for *revision* of the tax. As, however, there was no decision under section 172 before us to consider in appeal and as there was no provision in the Act under which we could compel the President to hear and decide appellant's application, we considered it unnecessary to go into the merits of the case and accordingly rejected the appeal in our order dated 22-9-'16 which ran as follows :

ORDER.—“Appellant's complaint not having been heard and decided by the President and two Commissioners under section 172 of the Act, there is no decision to appeal against under section 175. It is only the High Court that can issue

Messrs. G. Venkataramiah and N. Rama Rao, Vakils for the Appellant.

Mr. P. Duraiswami Aiyangar, Vakıl for the Respondent.

JUDGMENT :—In our opinion the Magistrates rightly held in their order dated 22nd September, 1916, that there was no decision under section 172 of the City Municipal Act and in consequence no appeal to them under section 175. The decision under section 172 must be that of a majority of the tribunal appointed thereunder [vide section 173 (3)] and it cannot be suggested that appellant's application was ever laid before such a tribunal. In fact the burden of appellant's complaint is that the President was legally bound to place his application before such a tribunal and did not do so.

The Magistrates were not legally seized of the case under section 175 and were not entitled to make the present reference under section 176.

We therefore return the papers without further orders.

Papers returned.

a mandamus to the President to summon two commissioners and hear and decide the complaint under section 172. In this view, it is unnecessary to consider whether there was any admission of the complaint by the President without prepayment of the tax or to enter into the merits of the contention that appellant was not liable to be assessed for the half-year in question. The appeal is rejected".

3. Appellant contends that the correspondence that took place on his letter dated 23-12-'15 is presumptive evidence that the President had admitted his application without prepayment of the tax under the proviso to section 174, that the application having thus been admitted, the President was bound to dispose of it in accordance with the provisions of section 172, and that in the circumstances of the case it was competent to us to direct the President to hear and decide the application under section 172. It is argued that as a special tribunal constituted by the Act, we have the power on appeal to interfere not only with erroneous decisions under section 172 but also in cases where the President refuses to do what he is by law bound to do or exercises a power not vested in him by law. Even if we had such an unlimited power, we should hesitate to exercise it in the present case in view of appellant's failure to prepay the tax which was a condition precedent to the admission of his application and in the absence of anything more definite than the correspondence relied on by him to indicate that the President had admitted the application without prepayment of the tax under the proviso to section 174. But we are of opinion that we have no such power under the Act and as the appellant contends that we have such power and as the question raised is clearly a question of law which appellant has applied for a reference under section 176, we are constrained to refer the question for the decision of the High Court.

4. The records together with the papers produced before us by the parties are enclosed.

KING'S BENCH DIVISION.

COX v. EVANS.*

Adulteration—Milk—Sample taken “in course of delivery”—Delivery by Railway—Absence of Inspector of Food and Drugs on Arrival of Milk—Interval between Milk being placed on Platform and Sample taken—Police in Control of Milk during absence of Inspector of Food and Drugs—Sale of Food and Drugs Act, 1875 (38 & 39 Vict. c. 63), s. 6—Sale of Food and Drugs Act Amendment Act, 1879 (42 & 43 Vict. c. 30), s. 3.

By s. 6 of the Sale of Food and Drugs Act, 1875, no person shall sell to the prejudice of the purchaser any article of food which is not of the nature, substance, and quality of the article demanded by the purchaser, under a penalty.

By s. 3 of the Sale of Food and Drugs Act Amendment Act, 1879, any inspector charged with the execution of the Act may procure at the place of delivery to the purchaser any sample of any milk “in course of delivery” to the purchaser in pursuance of any contract for the sale to the purchaser of the milk :—

Held, that the question whether a sample of milk is taken by the inspector “in course of delivery” within the meaning of s. 3 of the Act of 1879 is a question of degree. If upon summary proceedings taken under section 6 of the Act of 1875 for selling adulterated milk Justices find that a sample of the milk was taken “in course of delivery,” the Divisional Court cannot interfere with the finding if upon the facts it can possibly be supported in law.

The appellant sold and consigned milk to a purchaser under a contract which provided that the milk was to be delivered to the purchaser at a named railway station and that “arrival of the milk at the said railway station shall constitute delivery by the vendor to the purchaser.” By direction of the respondent (an inspector of Food and Drugs) police officers met the train on its arrival at the station, took possession of a churn containing the milk as it was removed from the train, placed it upon the platform, and prevented the consignee from taking possession of it until the respondent arrived at the station about twenty minutes later. The respondent then took a sample from the churn by dipping a pint measure into it.

Upon summary proceedings taken against the appellant under s. 6 of the Act of 1875 for selling adulterated milk to the prejudice of the purchaser the justices were of opinion that the sample was procured “in course of delivery to the purchaser” within the meaning of s. 3 of the Act of 1879 :—

Held, that as upon the facts it was possible to support the finding, the Divisional Court could not interfere with it.

Case stated by justices for the petty sessional division of Neath in the county of Glamorgan.

An information was preferred by the respondent Evans, an inspector under the Food and Drugs Acts, against the

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appellant Cox that he the respondent on February 15, 1916, procured at the place of delivery, to wit, at Briton Ferry in the county of Glamorgan, a sample of milk then in course of delivery to one Crocker, the consignee, in pursuance of a contract for the sale of the milk, the milk having been consigned by the appellant, and the respondent, suspecting the milk to have been sold contrary to the provisions of s. 6 of the Sale of Food and Drugs Act, 1875¹, submitted it to be analysed, and thereupon the milk was found not to be of the nature, substance, and quality of the article demanded by the purchaser thereof in that it contained 18 per cent. of added water.

The appellant was a milk vendor carrying on business at Cardiff and purchased milk from a large number of farmers in the county of Carmarthen, which was put into a vat holding about 400 gallons at a milk factory at Carmarthen belonging to the appellant. If when the whole of the milk from the farmers had come in there proved to be a deficiency in the quantity which the appellant desired to despatch for the day, the quantity was made up by the addition of milk prepared from milk powder and water. On February 15, 1916, forty-six gallons were so added to a total of farm milk of 349 gallons, and the mixture was then tested, by the Gerber test. It was then put into churns, and in the evening the appellant consigned some of the churns to a station called Port Talbot and some to another station called Briton Ferry. The respondent met the train at Port Talbot and took samples from the churns when they were put out of the train. Port Talbot was three miles farther east than Briton Ferry. A police inspector and sergeant, by an arrangement with the respondent, met the train at Briton Ferry and took possession of a churn as it was put out of the train and prevented the consignee from touching it, and retained possession of it until the arrival of the respondent at Briton Ferry about twenty minutes after the arrival of the train there. When the

¹ Sale of Food and Drugs Act, 1875 (38 & 39 Vict. c. 63) s. 6: "No person shall sell to the prejudice of the purchaser any article of food or any drug which is not of the nature, substance, and quality of the article, demanded by such purchaser, under a penalty not exceeding twenty pounds"

respondent arrived at Briton Ferry he took a sample from the churn there by dipping a pint measure into it. The churn had a label attached to it on which there were printed amongst others, the following words: "Warranted up to arrival at the undermentioned station only. Pure new milk with all its cream and free from preservatives. To Crocker. Station Briton Ferry." The milk contained eighteen parts by weight of added water.

On behalf of the appellant it was contended that the sample was not taken in course of delivery within the meaning of s. 3 of the Sale of Food and Drugs Act Amendment Act, 1879¹.

The only material conditions in the contract between the appellant and his consignee were: "(1) That the vendor agrees to supply pure milk free from any preservative well strained and refrigerated but the purchaser shall not be entitled to claim any compensation from the vendor in respect of any matter arising out of this contract unless written notice of the claim shall have been given to the vendor within three days after the occurrence of the default in respect of which the claim is made nor will any claim be recognised in respect of quality unless the samples shall have been taken immediately on arrival of the milk at the undermentioned railway station (or) immediately on delivery to the purchaser." "(6). "The milk shall be delivered to the purchaser at Briton Ferry, Railway Station of the Great Western Railway Company and arrival of the milk at the said station shall constitute delivery by the vendor to the purchaser; carriage by rail to the said Briton Ferry Railway Station shall be paid by the vendor".

¹ Sale of Food and Drugs Act Amendment Act, 1879 (42 & 43 Vict. c. 30) s. 3: "Any medical officer of health, inspector of nuisance or inspector of weights and measures, or any inspector of market, or any police constable under the direction and the cost of the local authority appointing such officer, inspector, or constable, or charged with the execution of this Act, may procure at the place of delivery any sample of any milk in course of delivery to the purchaser or consignee in pursuance of any contract for the sale to such purchaser or consignee of such milk."

The justices were of opinion that the sample was procured at the place of delivery and in course of delivery to the purchaser or consignee in pursuance of the contract, as provided by s. 3 of the Sale of Food and Drugs Act Amendment Act, 1879, and convicted the appellant.

The question for the opinion of the Court was whether the justices upon the facts came to a correct decision in point of law.

Holman Gregory, K.C., and *A. Neilson*, for the appellant. The words "in course of delivery" in s. 3 of the Sale of Food and Drugs Act Amendment Act, 1879, mean immediately after the milk is placed on the platform. They do not include an interval of twenty minutes. The appellant's warranty ceased on arrival of the milk at the station. The contract between the parties defines the position of the inspector of food and drugs. If he is there at the time the milk arrives, and intimates that he is going to take a sample and does so, the sample would be taken "in course of delivery". But a decision that an inspector can be absent from the station at the time of arrival and take the sample twenty minutes later and after the milk has been in the hands of third parties would throw a serious burden upon milk vendors. The police were no doubt acting in accordance with instructions from the respondent but the police have no authority to act in that way. (*Semple v. Dunbar*¹ and *Hellivell v. Haskins*² were referred to.)

Rigby Swift, K. C., and *C. E. Dyer*, for the respondent were not called upon.

LORD READING, C. J.—The point raised in this case is whether, having regard to the contract between vendor and purchaser, the sample of the milk sold by the appellant was taken "in course of delivery" within the meaning of s. 3 of the Sale of Food and Drugs Act Amendment Act, 1879, which gives power to the medical officer of health, inspector of nuisances, or certain other inspectors or persons to procure

¹ (1904) 6 F. (Just.) 65.

² (1911) 75 J. P. 435.

“ at the place of delivery any sample of any milk in course of delivery to the purchaser or consignee, in pursuance of any contract for the sale to such purchaser or consignee of such milk ”.

The appellant sold the milk under a contract in writing and his case rests upon a very strict view of the contract which, he contends, ought to be adopted. Upon his behalf it has been contended that at the moment of the arrival, of the milk at the station, that is, when it is placed on the platform, delivery has taken place, and anything which takes place thereafter is not done in the course of delivery. By clause 6 of the contract under which the vendor was to supply the milk, it was to be delivered at Briton Ferry Railway Station, and “ arrival of the milk at the station shall constitute delivery by the vendor to the purchaser ”. The milk in fact arrived at Briton Ferry Station. It appears that the respondent, who is the inspector under the Sale of Food and Drugs Acts, was at Port Talbot Station, three miles away, at the time the train arrived, at Briton Ferry Station. In order to get a sample of the milk at the Briton Ferry he arranged with a police inspector and sergeant who met the train at Briton Ferry Station and took possession of the churn of milk as it was put out of the train and prevented the consignee i.e., the purchaser, from touching it, and retained possession of it until the inspector arrived from Port Talbot about twenty minutes later and took a sample before the churn was handed over.

On behalf of the respondent it was contended before the justices that the sample taken by him when he arrived at Briton Ferry Station and found the milk still in the possession of the police inspector and sergeant, and before it had been handed over to the consignee, was taken “ in course of delivery ”.

The justices came to the conclusion that in the circumstances of this case, notwithstanding that there had been an interval of twenty minutes during which the police had held

the milk against the consignee, or prevented his obtaining physical possession of it, the sample taken at the expiration of that interval was taken in the course of delivery. When delivery was made at the station and the milk was placed on the platform for the consignee to take into his possession—or placed there and allowed to remain there—there was delivery under the contract. But that does not of itself answer the question before us, because we still have to decide whether the milk may nevertheless not have been “in course of delivery” within the meaning of the section when a sample was taken whilst the churn was still at the station and had not passed into the physical possession of the purchaser. No doubt if hours had elapsed since the arrival of the milk at the station it would be impossible to hold that there had not been delivery to the purchaser, and it appears to me that if in normal circumstances the churn had been placed on the platform and left there for the purchaser to fetch in the ordinary course of business, that would constitute delivery. But the question is whether, in the particular circumstances of this case, the delivery had been completed or whether the sample was taken in the course of delivery. That is entirely a question of degree. Obviously there may be such a set of facts as would make it absurd to say that a sample is taken in the course of delivery, and equally there may be such a set of facts as would make it impossible to say that, whatever the provisions of the contract may be, there can be no intervening period of time between the arrival of the milk at the station and the delivery to the consignee. If there could be no interval there never could be a sample taken in the course of delivery. According to the argument on behalf of the appellant the milk never could be in course of delivery unless the inspector took the sample while the milk was still in the train as it arrived at the station and when it was standing at the platform, and before the churn was removed from the train to the platform. That would be giving a very narrow interpretation to the meaning of the words “in course of delivery”. I cannot conceive that the

Legislature ever intended those words to be read in that sense; and moreover, if the arrival at the place of delivery is to be taken as delivery so as to make it impossible that during any interval of time after arriving at the station the milk is in course of delivery, the effect would be to defeat the operation of the statute. In normal circumstances the sample could not be taken unless the milk had arrived at the station.

In my judgment it is a question of degree, having regard to the particular facts of the case, whether the milk is still in course of delivery—assuming that those facts make it possible in law to support a finding of fact that the sample was taken in the course of delivery or whether the time that has elapsed is sufficient to prevent the sample having been taken in the course of delivery. It is quite clear that in the nature of things there must be an intervening period. It is very difficult to measure it or to think of it in legal terms, because it is a question of degree, and it must vary according to the particular facts of each case. When, as in the present case, there is the fact that the police inspector and sergeant held the churn for twenty minutes adversely to the consignee and would not allow him to have possession of it, and that at the end of twenty minutes the inspector of food and drugs arrived and immediately took the sample, it appears to me that we cannot hold that the justices were not entitled upon those facts, if they chose, to come to the conclusion that the sample was taken in the course of delivery. That decision would determine this case; but I desire to add, for myself, that if I had been sitting as a justice I should have come to the same conclusion, although it is not material to the point we have to decide.

The object of the statute is to protect the public against adulteration and the Court will not, unless compelled by the words of the statute, construe it in such a way as to limit its operation. In my judgment *Helliwell v. Haskins*¹ is not against the view I have expressed, but supports it. In that case the Court came to the conclusion that everything that could possibly be done in order to give delivery had been done.

¹ 75 J. P. 435.

Physical possession had actually passed into the hands of the purchaser of the milk, and, further, she carried away the purchased milk into her own house, and the door was shut and intervened between the vendor and purchaser. I can quite understand the justices coming to the conclusion, as they did in that case, that a sample taken afterwards was not taken while the milk was in the course of delivery. Everything had been done to complete the delivery from every point of view.

*Semple v. Dunbar*¹ tends to support, I think, the view which the justices took in the present case, and which, in my opinion, was right. In *Semple v. Dunbar*¹ the defendant's servant took the milk from the cart in a can and then poured it from that can into empty cans belonging to the purchaser, which were then standing in the purchaser's shop, and according to the contract, strictly regarded, that would constitute delivery to the purchaser; but the Court held that a sample taken immediately thereafter was taken in the course of delivery.

This appeal must be dismissed.

RIDLEY, J.—I have come to the same conclusion as the Lord Chief Justice and for the same reasons. In my judgment the question whether the milk is “in course of delivery” is, within certain limits, a question of fact. The statute does not mean that the question whether the milk is “in the course of delivery” must be decided as a question of law, but it is a question of fact for the justices in each case. They have to determine whether there was, in point of fact, a cessation of delivery,—whether it had come to an end, or whether it was still in course of being perfected when the sample was taken. In the present case, as the justices have found that for the twenty minutes the delivery was still in course of being perfected, we cannot interfere with their decision. If they had decided the other way, the question would have been more difficult; it would still have been a question of fact, but I certainly should not have agreed with their decision. So far as I am concerned—though it has nothing to do with the correctness of their decision—I agree with it.

¹ 6 F. (Just.) 65.

With regard to *Helliwell v. Haskins*¹, it is in my view a very instructive case. The facts are peculiar. The jug of milk had been received by the particular consignee, the purchase of that jug of milk, and the door of her house had been shut by her. The inspector applied to the seller for a sample from his can after the jug of milk had been taken out of it. The seller thereupon admitted that his milk was watered, which would not be sufficient for the purposes of the inspector, and he returned to the door, and obtained a sample from the purchaser. The justices found that the delivery was complete. It was a finding of fact, and the difficulty the majority of the Court felt was in seeing how they could reverse that decision of fact. As far as I am concerned, I cannot help adding that if I had been a member of the Court there I should probably have adopted the reasoning of Lord Alverstone, C.J., who delivered a dissenting judgment. That case is, however, distinguishable from the present one, for the justices came to the opposite conclusion and found that the delivery was complete, and the difficulty was in interfering with their decision.

In the present case the finding of the justices is in accordance with our decision, and in my opinion they were right.

Low, J.—I should have been quite content to decide this case upon the footing that the question was one of fact and of fact only, and therefore for the justices, but if there be any law involved in the question, I am quite satisfied that the justices have taken a proper view of it in the conclusion they came to, and I therefore concur that this appeal should be dismissed.

Appeal dismissed.

Solicitors for Appellants: *Vizard, Oldham, Crowder & Cash, for Spencers & Evans, Cardiff.*

Solicitor for Respondent: *T. J. David, for Lewis M. Thomas, Port Talbot.*

¹ 75 J. P. 435.

ALLAHABAD HIGH COURT.*

PRESENT: MR. JUSTICE BANERJI.

EMPEROR

Vs.

MUHAMMAD YUSUF.

U. P. Municipalities Act (II of 1916), section 210—Erect or re-erect a structure—The fixing of a portable plank—Whether it amounts to erection of a structure.

The use of the words "erect" or "re-erect" which precede the word "structure" in section 210 of the U. P. Municipalities Act indicates a structure of a permanent nature.

Hence, where the act of the accused consisted in the fixing of a portable plank over a public drain, *held* that it did not amount to the erection of a structure and that the conviction under section 210 was illegal.

Criminal Reference made by J. H. Cuming, Esq., Sessions Judge of Saharanpur.

The parties were not represented.

The following judgment was delivered by

BANERJI, J.—Muhammad Yusuf, the accused in this case, and Janki Das, the accused in the connected case No. 106 of 1917, have been convicted under section 210 of Act II of 1916, the United Provinces Municipalities Act, and each of them has been sentenced to a small fine. The two cases have been submitted by the learned Sessions Judge with the recommendation that the conviction and sentences should be set aside. Muhammad Yusuf and Janki Das own shops abutting on a public road within the Municipal limits of Dehra Dun. There is a drain in front of their shops which was apparently built at their expense. The drain is at the edge of the public road. Culverts have been built over the drain but the present dispute does not relate to the culverts. The charge against Muhammad Yusuf was that he had placed wooden planks in front of his shop supporting them by the culverts on one side and a tin canister on the other. Janki Das was prosecuted for putting planks over the space between two culverts, so as to cover the drain. The learned Sessions Judge finds: "in both cases expectations, if they can be so denominated, are tem-

porary ones. Neither the planks nor Muhammad Yusuf's canister are fixtures ; all are placed in sites in the mornings and removed when the shops are closed in the evenings. Presumably they can be and are also removed if and when it is desired to clean the drain, if it is necessary to remove them in order to perform this operation". Section 210 of the United Provinces Municipalities Act provides that any person erecting or re-erecting any such projection or structure as is referred to in section 209 without the permission thereby required or in contravention of any permission given thereunder shall be liable on conviction to a fine which may extend to two hundred and fifty rupees. Clause (b) of sub-section (1) to section 209, which is the clause applicable to the present case, refers "to the erection or re-erection of any projection or structure so as to overhang, project into, or encroach on, or over a drain in a street." There is no question of projection in this case. The question is whether the accused had erected any structure encroaching over a drain in a street. The learned Sessions Judge is of opinion that a structure referred to in section 209 must mean a structure of a permanent nature. It seems to me that the view taken by the learned judge is right. The use of the words "erect or re-erect" which precede the word "structure" indicate a structure of a permanent nature. The word "structure" is not defined in the Act ; but the use of the word "erect" shows, as was observed in the case of *Kamta Nath v. The Municipal Board of Allahabad*¹, that what was meant was something of the nature of a permanent structure. It does not seem to me that in enacting section 209 the Legislature intended to place any other meaning on the word "erect" than that held in the case to which I have referred. In this view the fixing of a portable plank cannot be deemed to be the erection of a structure within the meaning of section 209 of the Act. The conviction of the accused was therefore in my opinion illegal. I accordingly set it aside and direct that the fine imposed on the accused, if paid, be refunded.

Conviction quashed.

¹ (1906) I. L. R., 28 All., 196.

CALCUTTA HIGH COURT.*

PRESENT : MR. JUSTICE CHITTY AND MR. JUSTICE WALMSLEY.
CHAIRMAN OF HOOGHLY-CHINSURA MUNICIPALITY

Vs.

KRISTALAL MULLICK.

Bengal Municipal Act, Ss. 230, 271 and 353—Consent of Commissioners to prosecute—Enough if Chairman sanctions prosecution—Bengal Municipal Act, S. 45—Delegation—May be oral.

When the chairman of a Municipality submitted records under his signature to the collector, with recommendation to prosecute under sections 230 and 271 of the Bengal Municipal Act, *Held* that the prosecution was with the consent of the commissioners as mentioned in section 353.

Rasul Baksh v. Municipal Board of Chapra, (1912) 16 C. W. N. 934 referred to :

Under section 45 of the Act, delegation need not be by writing.

Khiroda Prasad v. Chairman of the Howrah Municipality, (1893) 20 C. 448 referred to.

This was a reference under section 438, Criminal Procedure Code, made by S. K. Ghosh, Esq., District and Sessions Judge of Hooghly on the 30th March, 1916, recommending that the order of Babu Probodh Chatterjee, Sub-Divisional Magistrate of Hooghly, dated the 8th January 1916, convicting the accused under section 271, Bengal Municipal Act, and sentencing him to pay a fine of Rs. 5 and also to a daily fine of annas eight from 31st May 1915 to 22nd July 1915.

Babu Atulya Charan Bose for accused.

Babu Manmothanath Mukerjee for opposite party.

JUDGMENT.—This is a reference by the learned Sessions Judge of Hooghly in the matter of one Kristalal Mullick who was prosecuted under section 271 of the Bengal Municipal Act for having disobeyed a requisition under section 230 and

* Crl. Ref. No. 52 of 1916. 14th April 1916.

sentenced to pay a fine. The learned Sessions Judge recommends that the conviction and sentence be set aside on two grounds which he admits are technical. The first is that the prosecution was undertaken without the consent of the commissioners. He considers that, under section 44, the chairman could give such consent. It appears from Exhibit 3 in the case that the report of these offences was made by the outdoor inspector; that the columns of that form were duly filled up and that in the remarks columns occurred this remark "submitted to the District Magistrate, Hooghly, with a recommendation to prosecute the party under sections 230, 271 of the Bengal Municipal Act". That is signed by Mohendra Chandra Mitter, Chairman, Hooghly-Chinsura Municipality. The learned Judge thinks that, because this document bears an eight annas stamp, it must be regarded as a petition of complaint and that the Chairman of the Municipality was merely in the position of the complainant. We do not so regard it. Section 353 says that no prosecution for an offence under this Act shall be instituted without the order or consent of the commissioners. This is clearly an order or consent by the chairman as representing the commissioners. It does not appear that the chairman ever went before the District Magistrate; the complainant who appeared before him was the outdoor inspector; and he gave evidence as such complainant, as appears from his deposition. We have been referred on this point to a decision of this court in *Rasul Buksh v. Municipal Board of Chapra*¹ in which the Judges are reported to have remarked: "The only evidence of sanction of prosecution of a public authority is a writing under the seal and signature of that authority". We have not been told of any enactment which requires a sanction for prosecution to be under seal. The facts of that case were somewhat different from the facts of the present case, but so far as a seal was held to be necessary, we are unable to agree with that in the absence of any legislative enactment to that effect. The expression there "sanction of prosecution" is

¹ (1912) 16 C. W. N. 934.

not quite in the wording of section 353 which speaks of the "order or consent". Exhibit 3 amounting to such order or consent in writing by the chairman is, we think, sufficient.

The second point is that the notice—Exhibit 1—against the accused was issued on the authority of the vice-chairman and that there is no evidence that the latter derived authority from the chairman. The learned Judge has referred to sections 44 and 45; but he has not directly referred to the proviso to section 45. Here it may be assumed that there was no written order delegating to the vice-chairman all or any of the duties or powers of a chairman as defined in the Act which would cover the particular order made by the vice-chairman in this case. The proviso, however, to section 45 says: "Provided that nothing done by the vice-chairman which might have been done under the authority of a written order from the chairman, shall be invalid for want of or defect of such written order, if it be done with the express or implied consent of the chairman previously or subsequently obtained." That the act of the vice-chairman was done with the express consent of the chairman subsequently obtained is clear in this case from the order to which we have referred in Exhibit 3. It is clear that the chairman must have given consent to the act of the vice-chairman; or he could never have written that order which has been designated a sanction to prosecute. On this point we have been referred to the case of *Khiroda Prasad v. The Chairman of the Howrah Municipality*¹ but the facts there, were very different from the facts in the present case. There was no evidence of any such consent on the part of the chairman as appears here. All that there was in that case to justify the order was as a verbal order given some months before by the chairman to the vice-chairman to institute all prosecutions under section 353.

We think, therefore, on the clear reading of the Act that the two points which the learned Judge has put forward cannot be supported. His recommendation to revise the proceedings is rejected.

¹ (1893) 20 G. 448.

ALLAHABAD HIGH COURT.*

PRESENT: JUSTICE SIR GEORGE KNOX.

BACHA LAL Vs. EMPEROR.

U. P. Municipalities Act II of 1906—Offence committed before New Board came into existence—Power to sanction prosecutions.

The Municipal Board that has come into existence under the new Municipal Act has power to sanction the prosecution of a person in respect of an offence committed before the Board came into existence.

Criminal revision from an order of E. F. Oppenheim Esq., District Magistrate of Banda.

Mr. Pearey Lal Banerji, for applicant.

Mr. Malcomson (Assistant Government Advocate) for Crown.

KNOX J.—Bacha Lal has been convicted of an offence under section 168 of Local Act No. 1 of 1900 and sentenced to pay a fine of Rs. 50.

The allegation against him is that he encroached upon a Municipal drain. What Bacha Lal appears to have done is that he made an erection on the side of the old drain. The breadth of the side of the drain on top of which the erection has been made is fourteen inches and the length of frontage is 76 feet 3 inches. Bacha Lal's defence was that he did no new work—he only repaired what was there before. The judgment is somewhat confused. I understand from it that Batcha Lal is not responsible for the whole of the erection that has been made on the top side of the drain. The learned District Magistrate says that "the view most favourable to him which I am on the evidence able to take is that the platform extended over the wall of the drain when he bought the property and that he only raised the front part of it some 7 or 8 inches over a breadth of about half a foot and a length of some 76 feet". If he did this without the permission of the Municipal Board, the action would undoubtedly amount to alteration of the drain. The offence, however, appears to have been

highly technical one and I cannot help feeling that the learned District Magistrate has taken an extreme view of the case. It is certainly not a case in which the maximum penalty prescribed by law should have been enforced. In addition to this, however, it is raised on behalf of Bacha Lal that the conviction in any case is illegal as Act No 1 of 1900 has been repealed and that the Municipal Board that came into existence in 1916 was not empowered to grant sanction of the prosecution of an offence which had been committed before that Board came into existence. The sanction for prosecution was given under the powers conferred by the Local Act No. II of 1916. I have carefully considered this plea and I hold that it is not entitled to weight. Section 17 of Act No. 1 of 1900 under which the Municipal Board was incorporated had by virtue of section 17 of Act No. 1 of 1900, created the existence of a corporate body with a perpetual succession and a common seal. It was empowered to do all things necessary for its constitution and could sue and be sued in its corporate name. All the members of the Board in existence when Local Act No. II of 1900 was on the eve of expiring and Local Act No. II of 1902 came into existence would constitute the same board and have the same powers unless those powers had been expressly limited or altered by law. No such alteration or limitation has been pointed out to me. I allow the application so far that I reduce the fine of Rs. 50 to Rs. 5. Any portion of the fine paid in excess of Rs. 5 should be refunded.

[IN THE COURT OF APPEAL.]

NASH v. ROCHFORD RURAL DISTRICT COUNCIL.*

[1914 N. 896.]

Local Government—Highway—Successive Highway Authorities—Liability for Acts of Former Authority—Parish Surveyors—Highway Board—Rural District Council—Practice—Admission of Further Evidence in Court of Appeal—

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Highway Act, 1835 (5 & 6 Will 4, c. 50)—Highway Act, 1862 (25 & 26 Vict. c. 61), ss. 11, 39—Local Government Act, 1894 (56 & 57 Vict. c. 73), s. 25—Rules of the Supreme Court, 1883, Order LVIII., r. 4.

The plaintiff in this case was driving upon a highway within the defendants' district, of which they were the highway authority. His pony suddenly put his foot through the crust of the highway and fell; the plaintiff's arm was broken and his pony injured. He brought an action against the defendants for 170*l.* damages, alleging that the accident was caused by the improper construction by the defendants of a drain under the highway. At the hearing he failed to prove that the defendants had constructed the drain in question, but by an arrangement he was allowed, without formal amendment of the pleadings, to contend that the drain was made by the defendants' "predecessors in title" (by which was intended their predecessors in the office of highway authority), and that the defendants were liable for their predecessors' misfeasance. On this question the jury found that the accident was caused by the negligent construction of the drain and that the drain was constructed by some of the defendants' predecessors in title, and they assessed the damages at 100*l.* On those findings Lord Coleridge J. entered judgment for the plaintiff. The defendants appealed:—

Held by the Court of Appeal, that, as there was no right of action for damages against a highway authority until actual damages had accrued, the preceding highway authorities were not under any liability which could be passed on to their successors; and, further, that, on the true construction of the Acts of Parliament creating the successive highway authorities, there was nothing to make any such authority liable for acts of misfeasance committed by its predecessors.

At the close of their argument respondent's counsel applied for leave, under Order LVIII., r. 4, to call further evidence that the defendants had in fact made the drain in question. The action was tried with the jury in February, 1916, and heard on further consideration before the judge on March 29. In the interval some persons residing in the neighbourhood, who had read the report of the case in local papers, offered evidence that the defendants had made the drain. The plaintiff obtained affidavits in May and in July, after the defendants had given notice of appeal, and gave them notice that he should apply to call further evidence, but took no further steps until the appeal came on.

The Court refused the application on the grounds that the plaintiff had not shown sufficient promptness in applying, and that the Court were not satisfied that he could not with due diligence have discovered the evidence before the hearing.

Observations of Lindley L. J. in *In re Copiapo Mining Co.* (1894) 10 Times L. R. 180; Annual practice, 1917, p. 1121, discussed.

On March 16, 1914, the plaintiff in this action was driving upon a public highway called Hambro Hill, in the parish of Rayleigh in Essex, when his pony's leg broke through the crust of the road at a place where, at some time unknown, a 12-inch pipe drain had been constructed under the highway, carrying water from a ditch on one side of the road to a ditch upon the other. The plaintiff broke his arm and the pony was injured. The plaintiff brought this action for damages

against the Rochford Rural District Council, the highway authority for the Rochford district, which included the parish of Rayleigh, claiming 170*l.* damages. The writ was issued on August 14, 1914, but the statement of claim was not delivered until January 23, 1915. Particulars of claim were delivered on March 25, 1915, and defence on April 10, 1915. The case came on for trial at the assizes on February 9, 1916, and the jury found that the accident was caused by the negligent construction of the pipe drain, owing to which the water had escaped at the place in question and the soil below the crust of highway had been washed or sucked away.

The plaintiff's statement of claim in this action alleged that the defendant council had constructed this pipe drain, and claimed damages on the ground that they were responsible for the negligent construction. At the trial the plaintiff failed to prove that the defendants had constructed the drain, but by arrangement made during the trial he was allowed, without any amendment of pleadings, to contend, and the jury found, that the drain was made by the defendants' "predecessors in title", by which phrase it was admitted that they meant "those who preceded the defendants in the office of highway authority." The jury also found that those who made the drain were guilty of negligence and assessed the damages at 100*l.* On these findings Lord Coleridge J. entered judgment for the plaintiff for 100*l.* The defendants appealed.

The following summary of the statutory provisions on which the argument turned is taken from the judgment of Warrington L. J.:—By s. 11 of the Act of 1862 it is enacted that "all such powers, rights, duties, liabilities, capacities, and incapacities, (except the power of making, assessing, and levying highway rates) as are vested in or attached to or would but for this Act have become vested in or attached, to any surveyor of any parish forming part of the district shall vest in and attach to the Highway Board." Section 39, which provides for the dissolution of a district, defines the consequences in the following terms: "Where any highway district is dissolved, or where any parish is excluded from any highway

district, the highways in such district or parish shall be maintained and the provisions of the principal Act (i.e., the Highway Act, 1835) in relation to the election of surveyors and all other matters shall apply to the said highways, in the same manner as if such highways had never been included within the limits of a highway district." The Act contains no definition of the word "liabilities," nor, as will be seen from the above citation, was it thought necessary or expedient to provide for the transmission of "liabilities" from the board to the surveyor or to the parish; the state of things existing before the formation of the district was simply restored.

The Local Government Act, 1894, s. 25, provides that "There shall be transferred to the district council of every rural district all the powers, duties, and liabilities of any highway authority in the district and rural district councils shall be the successors of the highway authority." Under s. 75 expressions used in that Act are, unless the context otherwise requires, to have the same meaning as in the Local Government Act, 1888. By that Act, s. 100, the expression "highway authority" "means as respects a highway district the highway board and as respects a highway parish, the surveyor or surveyors of highways or other officers performing similar duties" and the expression "liabilities" includes "liability to any proceedings for enforcing any duty or for punishing the breach of any duty, and includes all debts and liabilities to which any authority are or would but for this Act be liable or subject to, whether accrued due at the date of the transfer or subsequently accruing."

Hohler, K. C., and Naldrett, for the appellants. The Highway Act of 1835 first gave surveyors the power and imposed on them the duty to repair highways, but no part of the highway was vested in them, and the expression "predecessors in title" has no meaning. If it be taken to mean the successive road authorities who had the control of the roads, the plaintiff must show a sequence of authorities and a passing of liabilities from each authority to the next.

There is no evidence to show that the drain was not made before 1835, and until the Act of that year was passed the liability to drain the highway was on the adjoining owners and not on any road authority. The drain really forms part of an arterial system of drainage of the surrounding land. If it was made after 1835, there is no evidence to show that it was not made with due care and skill according to the usual method of the time; and if it was so made, *Papworth v. Battersea Corporation* (No. 2)¹ is a direct authority that the defendant council is not liable for negligence in not discovering the danger. It is settled that a highway authority is not liable in an action for damages for nonfeasance but only for misfeasance. Assuming there was misfeasance in the original construction of the drain, there is nothing in the successive Acts to pass on the liability from the surveyor of one year to the surveyor of the next, or from the surveyors to the highway board constituted by the Act of 1862, nor back to the surveyors after the dissolution of a board nor from them to the rural district council.

Moreover, there was no cause of action until damage accrued, and, therefore, there was no liability in anybody before the accident to the plaintiff, and no liability could be passed on.

S. A. Hawke, K. C., and *Frank Phillips*, for the respondent. We admit that a highway authority is only liable for misfeasance; but the finding of the jury is that there was misfeasance; for they find that the drain was made on the wrong principle, which must cause a washing away of the soil. It is not correct to say that before 1835 the liability for draining highways was upon the adjoining owners. The Highway Act of 1773 (13 Geo. 3, c. 78) s. 8, imposed such a liability only where cartways, &c., led out of the highway into the lands of such owners. Elsewhere the parish was liable. The actual words of transfer from one authority to another in the successive Acts are not important because the parish was

¹ [1916] 1 K. B. 583.

always liable, and the surveyors, highway board, and rural district council were successively appointed as machinery by means of which the parish could be sued. But in fact the Local Government Act, 1894, s. 25, sub-s. 1, clearly transfers to the rural district council all the liabilities as well as the powers and duties of every highway authority within its district. In *Papworth v. Battersea Corporation* (No. 2)¹, which was relied on upon the other side, Neville J. said that he was not satisfied that the liability of the district board did not pass to the corporation without words of transfer, and Bankes L.J. showed that he would have held that the liability did pass had there been words of transfer. That case, therefore, is really in our favour. The scheme of the Act of 1862 is that the highway board only took the place of the surveyors but represented the district instead of the parish. *Reg. v. Essex Justices*² shows that the dissolution of a highway district does not dissolve the board, but it continues to exist for the purpose of answering its liabilities.

[They then applied for leave under the Rules of the Supreme Court, 1883, Order LVIII., r. 4, to adduce some fresh evidence, which had been offered to the plaintiff by persons resident in the district since the trial, that the drain had been first made by the defendant council. They relied on the judgment of Lindley L. J. in *In re Copiupo Mining Co.*³ and on *In re H. M. S. Hawke*⁴. The facts as to the evidence proposed to be produced sufficiently appear in the following judgment.]

LORD COZENS-HARDY, M.R.—This application raises a curious point. The material facts are very short. An accident happened to the plaintiff by reason of a hole in the road alleged to have been caused by a drain. The defendants are the present highway authority. The statement of claim raises the case in this way: The defendants, the highway authority,

¹ [1916] 1 K. B. 583.

² (1883) 11 Q. B. D. 704.

³ 10 Times L. R. 180.

⁴ (1912) 28 Times L. R. 819. The case is also reported, but not on this point, in (1913) P. 214, sub. nom. *The Olympic and H. M. S. Hawke*, and [1915] A. C. 385, sub. nom. *Owners of Steamship Olympic v. Blunt*.

carelessly and negligently constructed the drain and they are liable in damages. That was the only issue according to the pleadings. Two witnesses were called on the part of the plaintiff to prove that this drain had been put in in the defendants' time, that time beginning in 1895—a modern time, about which there could be no difficulty in getting evidence. The necessity of that proof was apparent, because interrogatories were administered by the defendants to the plaintiff asking at what time he said this drain had been made by the defendants. The answer was “I cannot tell until I get discovery.” He never asked for and never obtained discovery. He called two witnesses into the box to prove this part of his case. One of them, the plaintiff himself, was about fifty years of age, the other about sixty-nine; both lived close to the locus in quo, and had lived there all their lives, but neither of them could remember when the drain was made. There was, therefore, not a particle of evidence to support the only issue which was pleaded. But then, by some arrangement not in question now, without amending the statement of claim or raising the issue very distinctly, the action was tried upon the footing that the drain was put in by some of the defendants' predecessors in title, as they are called—that is, some of the prior highway authorities. On that issue there was evidence taken, and also evidence as to negligence. The question was submitted to the jury and the jury found in these terms: (Q) “Did the defendants cause the drain to be constructed?” (A) “No.” Upon the evidence, that has not been challenged and could not be challenged. It was the one material issue in the action as originally started, and the arrangement which was made did not in any way entitle the plaintiff to hark back afterwards upon that issue upon which he had failed. The matter was heard at the assizes on February 8, 1916, and it was adjourned for further consideration, and came on in London before Lord Coleridge J. on March 29, and he then gave judgment in favour of the plaintiff. In the interval between February 8, and March 29, the assize case having been fully reported in the local journals,

the plaintiff's solicitor heard that there were two people in the neighbourhood—I suppose they volunteered—who could make some statement which might help the plaintiff on that point. Notice of appeal was given by the defendants some time in May. Then, in July the plaintiff's solicitor informed the defendants' solicitors that they desired to adduce further evidence on this point in the Court of Appeal. The defendants' solicitors very wisely did not take any notice of it. We are now asked, nearly at the end of November, on the assumption that apart from further evidence the plaintiff would fail, to allow him to adduce further evidence in support of this case. It is within our power, no doubt, to do so on special grounds, but this is a jurisdiction which ought to be exercised with the greatest possible care, particularly in case where the issue between the parties has been decided by a jury. The suggestion is that we should have affidavit evidence here to induce us to say that the verdict of the jury was wrong. That is a proposal which it seems to me ought to be very carefully scanned.

In the case which was relied on by Mr. Hawke of *In re Copiapo Mining Co.*,¹ Kay L. J. said that if the application before him had been one for a new trial, which was a somewhat analogous proceeding, it was impossible to suppose that it would have been granted. It was not suggested that there had been any surprise or that any new fact had been discovered which could not have been discovered before. Is there anything more in this case than there was in that? I think not.

Some language has been greatly relied on by Mr. Hawke which was used in that case by Lindley L. J. I have no doubt that the decision there, which was against the admission of further evidence, was perfectly right; but with the most unflinching respect for anything that fell from Lindley L. J., I venture to think that his statement, which I will read, goes further than is warranted by the principle; it is²: “Under Order LVIII., r. 4, leave to admit further evidence was only

¹ 10 Times L. R. 180.

² 10 Times L. R. 181.

given on special grounds. In His Lordship's opinion if the Court thought that the case had been decided on insufficient evidence, and that the evidence proposed to be adduced would be sufficient to enable the Court to discover the truth, that would be a special ground within the meaning of the rule, but that was not the case here". That, it will be remembered, was a case in which there had been no jury, but it was an appeal from North J., under the perfectly well-known procedure under s. 35 of the Companies Act to rectify the register by taking off one name and putting on another. Even in that case I venture to think it would be dangerous, and tend to a want of finality in all the proceedings of the Court, to admit further evidence merely on the ground that it would give more satisfactory proof of what took place. Moreover it must have been present to His Lordship's mind that in that case the Court of Appeal, if the evidence had been admitted, would have been in exactly the same position as the Court below. The Court below had affidavit evidence and cross-examination, not in the presence of the Court, but before one of the examiners or a commissioner. The further evidence they were asked to admit was again affidavit evidence, which would be subject to cross-examination in the same manner. In this case we should not be, and could not possibly be, in the same position as the Court below. That being so, it seems to me on that ground alone we should be making a very dangerous precedent if we were to say this application ought to be acceded to. But apart from that, I think in the present case it is quite beyond doubt that the application ought not to be acceded to upon another ground. The plaintiff knew what is alleged by these witnesses in February 1916; he knew it at the time of the notice of appeal, six months ago; and he did not make any application to the Court as he might have done, nor ask for a new trial; but he comes here now and makes this application, which deals with the only issue raised in the action as first framed, and which everybody knew must be of extreme importance

I think we ought not to allow the application.

WARRINGTON, L.J.—I am of the same opinion. The plaintiff went to trial to prove that the drain in question had been negligently constructed by the defendants themselves. He did not allege as an alternative that it had been negligently constructed by some other road authority preceding the defendants in that capacity. At the trial the plaintiff's witnesses were himself, being a man of about fifty years of age, and a man named Whittam, who was of the age of sixty-nine. They had both lived in the neighbourhood all their lives and said they could not remember when the drain was made. On the other side the defendants called two surveyors who had held office from the year 1895 down to the present time, each of whom swore positively that the drain had not been constructed in his time. Thereupon, of course, the plaintiff saw that it was hopeless to persist in the allegation on which he went to trial; and by some arrangement it was agreed that an alternative case might be made, if he could make it—namely, that the drain had been constructed by a previous road authority, to whose position the present defendants had succeeded. The result of the trial was that the jury found as a fact that the drain had not been made by the defendants; and they came to other findings, as the result of which the learned judge entered judgment for the plaintiff.

The action was tried at the assizes on February 8. A report of the case appeared in the local papers, as reports of such cases usually do, within a day or two after the trial, with the result that two persons, who think they know a great deal more about it than had been told to the judge and jury, come forward and say "We could tell you when that drain was laid". I will assume that the result of what they can prove, if they are believed, will be to show that the plaintiff was right after all, and that the drain was made by the road authority. An application is now made to adduce further evidence at the very last moment, only when the case comes on for hearing by the Court of Appeal, and after the plaintiff has strongly submitted to us that on the verdict as it stands he is entitled to the judgment which Lord Coleridge J. has given. It

seems to me it would be most dangerous to allow this evidence to be adduced now at this last moment. To begin with, I cannot believe that if reasonable inquiries had been made in the neighbourhood the plaintiff would have been unable to obtain the evidence which it is now said he can obtain—evidence which, if believed, puts the question beyond dispute. But more than that, I think when he knew that he had got that evidence and when he knew the verdict was against him on that one issue, and that the defendants were not applying for a new trial but were content to take the verdict as it stands, then he ought to have applied at once to the Court of Appeal for leave to adduce this further evidence which he now seeks to adduce.

For two reasons, first that I think it would be extremely dangerous to admit further evidence in such a case as this, and secondly that I think the plaintiff comes now much too late with his application, that application ought, in my opinion, to be refused.

SCRUTTON L. J.—I had some doubt as to the result of this application, but I have come to the same conclusion as my learned brothers, for these reasons.

The principle which I have to apply is, I think, the principle stated by Lord Chelmsford in the case of *Shedden v. Patrick*¹ in these words: "It is an invariable rule in all the courts, and one founded upon the clearest principles of reason and justice that if evidence which either was in the possession of parties at the time of a trial, or by proper diligence might have been obtained, is either not produced or has not been procured, and the case is decided adversely to the side to which the evidence was available, no opportunity for producing that evidence ought to be given by the granting a new trial". That is the principle which was acted upon by this Court in the first application in the case of *H. M. S. Hawke*.² I take the

¹ (1869) L. R. I. H. L. Sc. 470, 545.

² 28 Times L. R. 319.

reason of it to be that in the interests of the State, litigation should come to an end at some time or other ; and if you are to allow parties who have been beaten in a case to come to the court and say " Now let us have another try ; we have found some more evidence," you will never finish litigation, and you will give great scope to the concoction of evidence. In the particular case of the *Hawke*¹ to which I have referred, the Court of Appeal did admit the evidence ; and they admitted it for two reasons which are stated by Vaughan Williams L. J. in the Court of Appeal¹ : " We have admitted the evidence of the finding of the wreckage on the ground that it is relevant and material to the decision of the action by the *Olympic* against the *Hawke*, and also having satisfied ourselves that the search for the wreckage was not postponed by the *Olympic* taking their chance of winning their case independently of any search for wreckage." That is to say, the Court thought there had been due diligence on the part of the persons who were seeking to adduce the new evidence.

Now in this case the plaintiff went to trial in his pleading on an allegation that a particular road authority had been guilty of negligence in the construction of a drain. At the trial the plaintiff and another witness, who both lived near to the place, could give no evidence as to when the drain was constructed, and the jury found positively that the defendants did not cause the drain to be constructed. The plaintiff now wants to give evidence that the finding of the jury was wrong and that the defendants did cause the drain to be constructed. He had that evidence very shortly after the trial, but he did not apparently mention it to Lord Coleridge J. when the matter came on for further consideration. Two months after the notice of appeal he mentioned it to the other side, but he mentioned it to this Court for the first time yesterday. I should be sorry to lay down any principle which would prevent the Court of Appeal from getting at the truth where the conditions I have stated are fulfilled. What evidence the

¹ 28 Times L. R. 319.

² (1913) P. 239.

Court will admit must depend very much on the circumstances of each case and how far the evidence could have been obtained before the trial by the party who seeks to adduce it with proper diligence. For instance, within the last year or two years there has been an action for breach of promise brought by a lady against a man, where the lady got a verdict ; information then came to the knowledge of the defendant that the lady was already married, and was married at the time she alleged the promise was made. The Court at once admitted that evidence, because it was not evidence that the man could be expected to know of, and the Court were satisfied that he could not have obtained the evidence before the trial. In this case the plaintiff and one of his witnesses lived quite close to this drain, and they did not know when it was made. We are not told who the persons are who profess to say that they do know when it was made, or where they live. The farther off they live, the less valuable, probably, their evidence is ; the nearer they live, the more easy it was to find them. In view of that fact I am not satisfied that by reasonable diligence the plaintiff could not have found this evidence before ; and I am not satisfied that when he found it he used reasonable diligence to make it clear that he wanted to upset a finding of the jury which had been obtained in the action. I am quite clear that the evidence as stated would be material ; but I think the application to give it should be refused, on the ground that the plaintiff has not shown that with due diligence he could not have discovered it before, and has not used due diligence in bringing it to the notice of the Court.

Hohler, K. C., in reply upon the general case.

Cur. adv. vult.

Dec. 7. Lord Cozens-Hardy, M. R. (after stating the facts as above). The action was launched on the footing that the drain had been constructed by the defendants. There was no evidence to support this allegation, and the jury have expressly negatived it. By an arrangement made in the course of the trial, without any amendment of the pleadings, the jury

were asked whether the defendants "predecessors in title" caused the drain to be constructed, and the answer of the jury was "Yes." Judgment was entered for 100*l.* damages.

It is admitted that mere negligence in omitting to repair will not support an action against a rural district council for damages: *Cowley v. Newmarket Local Board*.¹ There is no evidence, and certainly no finding when the drain was laid, or by what authority. The successive road authorities were as follows: (a) 1835 to 1863, parish surveyors under the Highway Act, 1835; (b) 1863 to 1881, a highway board under the Act 1862; (c) 1881 to 1895, parish surveyors, the highway board having been dissolved; (d) 1895 to present time, the defendants under the Act of 1894.

It seems to me that the plaintiff is in great difficulty by reason of his inability to ascertain which of the authorities laid down the drain. It is not the defendants, but it may have been laid down during (a), (b), or (c), and possibly by some authority prior to 1835. Mr. Hawke boldly argued that the parish is the body which is represented by all the authorities, and that the defendants are liable for all the consequences of any misfeasance, however many years ago, by any one of the successive highway authorities. I am unable to assent to this argument. Assume that the drain was laid down some time between 1835 and 1895. The construction of the drain, however negligent, gave no cause of action until the accident to the plaintiff. Damage is a necessary part of the cause of action. There was no legal liability until damage accrued. It is like the right of support, where a man by excavating on his own land lets down his neighbour's house. There is no real wrong in the mere excavating not followed by damage to the house. So a false and fraudulent representation, not followed by damage, gives no cause of action.

The plaintiff relies upon s. 25, sub-s. I, of the Act of 1894, by which there was transferred to the defendants "all

¹ [1892] A. C. 345.

the powers, duties and liabilities" of "any highway authority" in the district, and they were made "successors of" the highway authority, *i.e.*, of the surveyors of the parish. And the plaintiff relies upon the definitions of "highway authority" and "liabilities" in s. 100 of the Local Government Act, 1888, which definitions are made applicable to the Act of 1894 by s. 75. In my opinion there is nothing in s. 100 which so enlarges the meaning of liabilities as to include a case like the present.

This is not a "liability to any proceeding for enforcing any duty or for punishing the breach of any duty." And the subsequent words relate only to pecuniary obligations.

It follows, therefore, that the defendants are not liable to damages for a negligent act before 1895 which did not result in damage until after 1895. In my opinion the judgment cannot be supported, and the appeal must be allowed and judgment entered for the defendants.

WARRINGTON L. J.—The defendants, the Rochford Rural District Council, are the highway authority for their district, which includes the parish of Rayleigh. In this parish is a highway called Hambro Hill. There has at some time been constructed under the highway a 12-inch pipe drain carrying water from a ditch on the south-west side thereof to one on the north-east side, the drain thus acting incidentally as a highway drain. The plaintiff met with an accident owing, as he contended and as the jury have found, to the negligent construction of the drain, and sues the defendants for damages occasioned thereby.

It is conceded that the defendants as a highway authority are liable in damages for an act of misfeasance only, not for mere nonfeasance: *Cowley v. Newmarket Local Board*.¹ Accordingly the plaintiff in his statement of claim alleged that the defendants themselves had caused the drain to be constructed. It was found at the trial that he would be unable to prove this, but he was allowed to make the case that it had

¹ [1892] A. C. 345.

been constructed by a previous road authority, for whose acts it was contended the defendants were liable as if they were their own. The jury found that the defendants did not cause the drain to be constructed, but that the defendants' predecessors in title did so. The expression "predecessors in title" is not an accurate one, but it clearly means "those who preceded the defendants in the office of highway authority." On these findings, together with affirmative findings as to negligence, Lord Coleridge, J., entered judgment for the plaintiff for 100*l.*, the damages awarded by the jury.

The point raised on this appeal is that the learned judge was wrong in treating the misfeasance of the preceeding authority as equivalent to the misfeasance of the defendants themselves, so as to enable a person who suffers injury in consequence thereof to recover damages from the defendants.

The highway in question has been under the control of a number of different authorities, and the jury do not find, and in fact there was no evidence enabling them to find, by which in particular of the several authorities, other than the defendants, the drain was constructed. [His Lordship then stated the effect of the various Highways Acts as above, and continued :]

As I have pointed out, the jury have not identified the predecessor by whom the negligent act was committed, but I will suppose for the moment that it was the surveyor, or one of the surveyors, in office during the years 1881 to 1895. Would the provisions of the Act of 1894 render the district council liable for the consequences of the negligent act of the surveyor? To so hold would, I think, be inconsistent with the doctrine now well established that a highway authority is responsible for misfeasance only, and though of course it is competent to Parliament to abolish that doctrine altogether, or to make it inapplicable where the act of misfeasance is that of a preceding authority, I do not think one ought to hold that such a result has happened unless the words are clear. In the present case I cannot find either in s. 25 of in the

definition in s. 100 any sufficient intention to pass on the responsibility for a wrongful act not their own and by itself affording no cause of action. The preceding authority was not in fact under any liability inasmuch as the damage essential to the existence of liability had not arisen.

If I am right on the construction of the Act of 1894 it is unnecessary to go further, for in the Act of 1862, s. 39, there was no transfer of liability from the district board to the surveyor and the words in s. 11 transferring the liabilities of the surveyor to the board were not so strong as the corresponding expression in the Act of 1894 as interpreted by the definitions in the Act of 1888.

I think it would require much clearer words than either statute contains to render the incoming body liable for the consequences of a wrong not committed by itself. The reference to punishment affords a further argument in favour of the construction I have adopted, for it can hardly be supposed that Parliament intended to render an authority liable to punishment for something done by another. On the whole I think the appeal ought to be allowed and judgment entered for the defendants.

SCRUTTON, L. J. stated the facts and continued: By a long line of authorities from *Russell v. Men of Devon*¹ to *Cowley v. New Market Local Board*² it is clear that the defendants were not liable in a civil action for nonfeasance as distinguished from misfeasance, and that therefore, even if they knew of the negligent construction and consequent hole, but did nothing, no liability would attach to them. But for some reason the jury were asked if the defendants were negligent in not observing and remedying the defect, and they answered "Yes." Questions and answers were immaterial and superfluous. On further consideration the learned judge held that there was evidence on which the jury could find that some road authority constructed the drain with which I agree. He further said: "Without going into the Acts and Statutes

¹ (1789) 2 T. R. 667.

² [1892] A. C. 345.

and sections in detail, I am of opinion that the language in each case is sufficiently wide to cover the construction placed upon them by the plaintiff, namely, that the authority in each case was responsible for the acts of misfeasance of the predecessors in title." This, though satisfactory to the plaintiff, does not help the Court of Appeal much as to the grounds of the learned judge's decision. It is therefore necessary to examine the facts and statutes with some care.

The defendants, the Rochford Rural District Council, came into existence by virtue of the Local Government Act, 1894, in 1895. In 1881 a previously existing Rochford Highway Board, constituted under the Highway Act of 1862, had been dissolved and from 1881 to 1895 the surveyors of the parish of Rayleigh had been the road authority. Before 1862 surveyors of the parish Rayleigh had also been the road authority—since 1835 under the Highway Act of 1835; before that date under the Highway Act of 1773. Each surveyor held office for a year. One of these authorities, and there was no evidence which, had been negligent in the construction of the drain. But no damage had been caused by that negligence up to the year 1895, when the defendant rural board came into existence; and, therefore, no previous authority had been "liable," in the ordinary legal sense of the word, to any one for negligence. For, as was pointed out by Lord Blackburn in *Darley Main Colliery Co. v. Mitchell*¹ you may be as negligent as you like, no cause of action or liability arises till your negligence does damage. But the plaintiff suggests that by the statutes an authority which has done nothing and is indeed not liable for doing nothing (which is nonfeasance) is liable for something done by a predecessor if that act causes damage during the reign of the latter authority. And further that the latter authority may be liable, by transmission of liability, through an intermediate authority who itself did nothing, and in whose reign no damage occurred, but who is yet supposed to have a liability derived from its predecessor's negligence to pass on.

¹ (1886) 11 App. Cas. 127.

I turn to examine the statutes which are supposed to have worked this result; and it is sufficient in the first instance to see what statutes transferred liability from the surveyors of the parish of Rayleigh in 1894 to the Rochford Rural District Council in 1895. Section 25 of the Local Government Act, 1894, transfers to the rural district council all the powers, duties, and liabilities of any highway authority in the district. By s. 67, where any powers and duties are transferred by this Act from one authority to another authority, (1) all property held by the first authority for the purpose by virtue of such powers and duties shall pass to and vest in the other authority subject to all debts and liabilities affecting the same. (3) All debts and liabilities of the first authority by virtue of such powers and duties shall become debts and liabilities of the latter authority. Section 100 of the Local Government Act, 1888, defines "liabilities" to include liability to any proceeding for enforcing any duty or for punishing the breach of any duty, and includes all debts and liabilities to which any authority are or would but for this Act be liable or subject to, whether accrued due at the date of the transfer or subsequently accruing. And s. 75 of the Local Government Act, 1894, provides that expressions used in this Act shall, unless the context otherwise requires, have the same meaning as in the Local Government Act, 1888; thus incorporating in the sections quoted the definition of liability already set out.

The question is whether a previous authority who has done a negligent act causing no damage has any "liability", as above defined, to pass on to a subsequent authority, so that on damage occurring due to that negligence the subsequent authority, which itself has done nothing and is not liable for nonfeasance, becomes liable to an action for negligence. The question would not be confined to an action for negligence. Where an excavation on land ultimately causes damage on adjoining land, there is no cause of action till damage ensues, and the Statutes of Limitations run from the occurrence of damage: *Backhouse v. Bonomi*.¹ And other examples can easily be suggested. I cannot think that

negligence not causing damage involves a "liability" in the ordinary legal sense, or in the sense of the interpretation clause, either a "liability to any proceeding for enforcing a duty," or "liability to which any authority would but for this Act be liable or subject to whether accrued due at the date of the transfer or subsequently accruing." The latter words point to bills of exchange and similar obligations where a liability arises from acceptance accruing due at a future date. Indeed, as the definition of "liability" includes liability to punishment, it should obviously be construed strictly.

It was argued that it was desirable to treat the various authorities as one succession representing the parish, each authority liable as representing the one continuous parish. But I gather Rayleigh parish is not the same as the area of Rochford District Council; and if it were, it is not the duty of the courts, (who are bound by the rule of *Cowley v. New Market Local Board* ¹ to hold that highway authorities are not liable for nonfeasance) to make generous constructions of the words of statutes in order to defeat the rule. If it is to be altered, it must be altered by Parliament, which has at present allowed it to stand unaltered for many years.

I may add that the decisions in the much litigated case of *Papworth v. Battersea Corporation* (No. 2.) ² (latest stage) do not touch this point.

The question here, whether negligence not followed by damage can create a "liability" to be transferred, was not argued or decided in that case.

The judgment appealed from must be set aside and judgment entered for the defendants with costs here and below. In view of the fact that the plaintiff failed entirely on the pleadings on which he went to trial, I do not see my way to give him the costs of any matters decided in his favour.

Solicitors for appellants: *Kingsford, Dorman & Co., for Gregsons & Powell, Southend.*

Solicitors for respondent: *Lawton & Taylor, for W. Bygott, Rayleigh, Essex.*

¹ [1892] A. C. 345.

² [1916] 1 K.B. 553.

[PRIVY COUNCIL.]*

TORONTO ELECTRIC LIGHT COMPANY, LIMITED. Appellants;

AND

CORPORATION OF THE CITY OF TORONTO.....Respondents.

ON APPEAL FROM THE SUPREME COURT OF ONTARIO,

APPELLATE DIVISION.

*Ontario — Electric Light Company — Municipality —
Letters Patent — Right to erect Poles — Formal Agreement
necessary — Franchise — 45 Vict. (Ont.) C. 19, S. 2.*

The appellants were incorporated by letters patent under R. S. Ont., 1877, c. 150, and 45. Vict. (Ont.), c. 19. The letters patent authorized them to lay down and maintain in, upon, and under the streets of Toronto all wires, poles, &c., to enable them to distribute electric light and power. By s. 2 of 45 Vict. (Ont.) c. 19, every company incorporated under that Act may conduct electricity by any means through, under or along the streets of the municipalities named by its letters patent, but only upon and subject to such agreement in respect thereof as should be made between the company and the municipalities respectively :—

Held, (1) that an agreement to be implied from acts of acquiescence by the respondents was not sufficient to satisfy s. 2 above mentioned, but that the section required a formal agreement as a condition precedent to the appellant's right to enter upon the streets of the city and construct its works, (2) that the respondents had an absolute right to prohibit the appellants from constructing any works through, under or along the streets, and not merely a right to regulate by agreement the manner in which the work should be carried out.

Appeal from a judgment of the Supreme Court of Ontario, Appellate Division (March 15, 1915), reversing the judgment of Middleton J. at the trial.

The action was brought by the appellants in the Supreme Court of Ontario for an injunction restraining the respondents from cutting down, removing or otherwise interfering with the poles and wires of the appellants upon the streets and other public places in the city of Toronto.

The facts of the case, together with the relevant statutes and agreements, appear from the judgment of their Lordships.

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† *Present*: Viscount Haldane, Lord Atkinson, Lord Shaw of Dunfermline, and Lord Parmoor.

The action was tried by Middleton J., who granted the injunction prayed for. The learned judge's judgment is reported at 31 Ont. L. R. 387.

The present respondents appealed to the Appellate Division. That Court (Meredith C. J. O., Magee J. A., and Hodgins J. A., Garrow J. A. dissenting) allowed the appeal and, subject to certain declarations, dismissed the action. The appeal is reported at 33 Ont. L. R. 267.

1916. July 20, 21, 24, 25. *Sir J. Simon, K. C., Hellmuth, K. C., and Anglin, K. C.*, for the appellants.

Sir R. Finlay, K. C., and Geary, K. C., for the respondents.

The arguments sufficiently appear from the judgment of their Lordships. Reference was made to 45 Vict. c. 19 (Ont.), ss. 2, 3, 4; R. S. Ont., 1877, c. 157, ss. 54, 56, 57, 58, 69, 70, 82; R. S. Ont., 1877, c. 1, s. 8, sub-s. 4; and *Toronto Corporation v. Toronto Ry. Co.*¹

Oct. 23. The judgment of their Lordships was delivered by

LORD ATKINSON.—This is an appeal from a judgment of the Appellate Division of the Supreme Court of Ontario, dated March 15, 1915, whereby the judgment of Middleton J. in favour of the appellants, the plaintiffs in this suit, was set aside and it was ordered that, subject to certain declarations therein set out, the action should be dismissed with costs.

The case is not free from difficulty. This is due in a great degree to the fact that some important transactions which took place between the parties to this appeal were not evidenced by nor embodied in formal written instruments.

The appellant company was incorporated by letters patent, dated September 20, 1883, under the provisions of the Ontario Joint Stock Companies' Letters Patent Act (R. S. Ont., 1877, c. 150) and of "An Act respecting companies supplying electricity for the purposes of light, heat, and power" (45 Vict. c. 19, Ontario).

¹ (1907) A. C. 315.

The letters patent purported to confer upon the appellant company the following amongst other powers, namely :—" To manufacture, produce, use, and sell electric light and power, to erect and construct plant, works, buildings, storehouses, and all other machinery for the production or manufacture of such electric light or power, and to lay down, set up, maintain, renew and remove in and upon and under the streets, squares, and public places of the said city of Toronto all wires, lines, tubes, pipes, poles, posts, and all other apparatus and appliances to enable said company to supply and distribute such electric light and power, to supply electric light or power to such persons, companies, or corporations, as may require the same on such terms as may be agreed . . .".

By s. 2 of 45 Vict. c. 19, above-mentioned, it is enacted that " Every company incorporated under this Act may construct, maintain, complete, and operate works for the production, sale, and distribution of electricity for purposes of light, heat and power and may conduct the same by any means through, under, and along the streets, highways, and public places of such cities, towns, and other municipalities, but as to such streets, highways and public places, only upon and subject to such agreement in respect thereof as shall be made between the company and the said municipalities respectively and under and subject to any by-law or by-laws of the councils of the said municipalities, passed in pursuance thereof ". By s. 3 it is provided that ss. 50 to 60 and ss. 62 to 85 inclusive of " An Act respecting Joint Stock Companies for supplying cities, towns, and villages with gas and water " (R. S. Ont., 1877, c. 157), should be read as part of the above-mentioned statute (45 Vict. c. 19) the word " electricity " being substituted for the words " gas " or " gas or water " or " gas and water " and the words " wires or conductors " being read after the words " mains and pipes " or " mains or pipes " where these words occur in those sections. On referring to the sections thus incorporated it will be found that compulsory powers are conferred upon the company in respect of only one or possibly two matters. It can undoubtedly under s. 82

enter, if necessary, upon land outside, but within ten miles of the City of Toronto and erect works thereon without the consent of the owner. Provision is made for arbitration on such occasions, and under ss. 56, 57, and 58 the company may possibly have compulsory powers where the different parts of a building belong to different proprietors, or are in the possession of different lessees or tenants, to carry their wires or conduits over the property of one or more of those proprietors or tenants to the property belonging to or in the possession of another, or to break up and cut trenches in passages common to neighbouring proprietors or tenants and to erect works thereon or thereunder, making due satisfaction therefor, but in these two cases alone.

The company, however, is by s. 69 prohibited from taking, using, or injuring any house or other building, or land set apart for a garden, orchard, yard, park, paddock, or such like, or from conveying from the premises of any person water already appropriated and necessary for domestic use, without the consent in writing of the owner or owners first had and obtained. The provision thus incorporated into s. 3 of the Act of 1882, touching the consent of the owners in writing, required as a condition precedent, may afford some clue to the proper construction of the immediately preceding section of the same statute dealing with the streets and highways under the control of municipalities.

The incorporation of a company, such as the appellant company is, in the Province of Ontario, by no means a matter of course. By the Ontario Joint Stock Companies Letters Patent Act (R. S. Ont., 1877, c. 150) the Lieutenant-Governor-in-Council is empowered to grant a charter to any number of persons, not less than five, who shall petition therefor, constituting them, and such others as may become shareholders in the company about to be formed, into a body corporate for the purposes mentioned. Of the granting of the letters patent notice must forthwith be published by the Provincial Secretary in the Ontario Gazette. The company

so incorporated may, amongst other things, acquire, hold, alienate, and convey real estate subject to the restrictions and conditions imposed by the letters patent, and will also be entitled to all the powers, privileges, and immunities requisite for the carrying on its undertaking as though it had been incorporated by a special Act of the Legislature embodying all the provisions of that statute.

The appellant company in exercise of the powers thus conferred upon it, established an extensive system for the distribution of electricity over almost the entire city of Toronto. It supplied current to private customers and to the respondents for the lighting of the street lamps. This system was in 1912 a composite one, partly overhead, partly underground, but intercommunicating. Much the larger part was overhead. It then covered 370 street miles, the wires being carried on 15,705 poles erected on the streets and public places of the city. These poles, the greater number of which were owned by the appellant company, the remainder used by it with the permission of their owners, carried 1,450 miles of wire. In the great majority of cases each of the poles carried wires supplying current for domestic lighting and power and also wires for street lighting. In a minority of instances the poles and wires were used for one service only, sometimes for street lighting alone, sometimes for domestic service alone.

The underground system at this period consisted of about 350 miles of single conduit laid in twenty-eight to thirty street miles. Many of the circuits of the company are in part overhead and in part underground. At many points the overhead conductors feed the underground, and at many others the process is reversed. The two systems were in 1912 so interlaced, as it was styled, that if the overhead construction were removed the underground, in some instances, would have no connection with the terminal stations or sub-stations of the company or with any sources of power. It was not disputed that the cost of constructing underground

conduits so far exceeds that of carrying wires overhead upon poles that, having regard to the prices obtained for current, the former system is only commercially possible of adoption in a limited and favoured area in the city of Toronto where customers are both large and numerous. In this state of things the respondents, on February 6, 1912, passed a resolution denying, amongst other things, (1) the right of the appellant company to lay any underground conduits outside the limits of the city of Toronto as they existed on November 13, 1889, and (2) its right to construct pole lines within the city save for the purpose of implementing its contract with the respondents themselves for street lighting. They followed this up about the middle of October 1912, by preventing by force the appellant company from erecting additional poles and wires, and by cutting down and removing certain poles and wire, part of the appellant overhead system which had been erected and in actual use for some three years previously. Thereupon the action out of which this appeal arises was on October 26, 1912, instituted claiming an injunction restraining the respondents, their servants, agents and workmen, from cutting down, removing, or otherwise interfering with the poles and wires of the appellant company situate on the street and other public places in the city of Toronto, and also claiming damages and further relief.

On October 26, 1912, an interim injunction in the terms of the claim was granted by Middleton J. It was on November 4, 1912, continued by him till the trial, and on hearing of the case was by the order of that learned judge, dated May 14, 1914, made perpetual. It was referred to the Master in Ordinary of the Court to ascertain the amount of damages sustained by the appellant company by reason of the acts complained of.

On appeal from this judgment to the Appellate Division of the Supreme Court of Ontario, that Court, Garrow J. A. dissenting, delivered judgment allowing the appeal, and by their order, dated March 15, 1915, set aside the judgment and order appealed from, and declared that, save in the cases therein

specified, the appellant company had not any right to use any street, highway, or public place within the limits of the city of Toronto, as they then were or might thereafter be constituted, in order to conduct electricity for the purpose of supplying light, heat, or power, nor any right to erect, construct, maintain, complete, or operate in, along over, or upon any of the said streets, highways, squares, or public places any pole, wire, line, tube, pipe, post, or other apparatus or appliance whatever for the purpose of conducting electricity. The exceptions mentioned are three in number : first, the right to erect poles and wires for the distribution of electricity on the aforesaid streets and public squares and public places secured to the appellant company by the terms of an agreement, dated August 30, 1883, entered into by the respondents and one G. D. Morton, second, the rights secured to it by the provisions of certain agreements made during the years 1901 to 1911 inclusive, giving special permission to erect poles and string wires thereon for certain purposes on certain parts of certain streets or public places in the city of Toronto ; third, the right under the terms of an agreement made between the appellant company and the respondents, dated November 13, 1889, to construct, lay down. and operate, &c., certain underground wires and conduits in any of the streets, lanes, parks, and public places in the said city for the distribution and supply of electricity, and also the right to distribute the same thereby.

The question for the decision of the board is in effect which of these two orders, that of Middleton J. or that of the Appellate Division is right. To determine that question it is necessary in the first instance, to decide what is the true meaning of the words " only upon and subject to such agreement in respect thereof as shall be made between the company and the said municipalities respectively " as used in the second section of the statute of 1882 (45 Vict. c. 19). It is admitted by the respondents that this agreement need not be under seal. It is not expressly required even to be in writing.

They contend, however,—rightly their Lordships think—that it must be at least a formal agreement as distinguished from mere silent acquiescence or implied consent, and the one thing apparently certain about it is that by the use of the words “only upon” its existence is made a condition precedent, which must be fulfilled by the company before it becomes entitled to enter upon the streets and public places of the city to construct its works.

A provision somewhat analogous to this is to be found in s. 69 of the Act of 1877, incorporated into s. 3 of the Act of 1882, dealing with the owners of the private property. It enacts that “nothing contained in this Act shall authorise any such company, or any person acting under the authority of the same, to take use or injure for the purposes of the company, any house or other building or any land used or set apart as a garden, orchard, yard, park, paddock, plantation,” &c., or “convey from the premises of any person any water already appropriated and necessary for his domestic uses without the consent in writing of the owner or owners thereof first had and obtained.” The owner or owners could, of course, attach any conditions they pleased to their consent. It would be strange indeed if s. 2 of the statute should confer upon municipalities, in respect of the streets and highways over which they had authority and control, protection altogether less effective than the succeeding section confers on the owners of the hereditaments thus mentioned, and that silent acquiescence or implied permission should be held sufficient to satisfy s. 2 but insufficient to satisfy s. 3. By holding that the actual making of a formal agreement is a condition precedent in the first case, just as the obtaining of consent in writing is a condition precedent in the second, the two sections are made to harmonize, and the construction which makes them do so is, in their Lordships’ opinion, the true construction of the statute.

It is next necessary to determine what is the character of the rights and powers, the nature and width of the so-called

franchise conferred upon the appellant company by the letters patent and the statute of 1882 taken together. Upon this point the parties are at right angles. It is contended on behalf of the Corporation that, whatever the nature of the agreement mentioned in s. 2, the corporation has an absolute right to prohibit and prevent the company from constructing, maintaining, or operating any works under, along, or upon the streets, highways, or public places of the city of Toronto for the production, distribution, or sale of electricity for any purpose whatever. It is contended on behalf of the company, on the other hand, that the franchise, which it possesses entitles it to do all these and the other things mentioned in the letters patent and this statute, and that the rights of the respondents is confined merely to prescribing and regulating the mode and manner in which the franchise is to be exercised and enjoyed. The appellants' counsel insists that, should the respondents absolutely refuse to permit his clients to exercise their so-called franchise, they could, by suit at law, restrain the corporation from so doing, and compel them to confine themselves to their proper function of merely regulating the mode and manner in which the franchise should be exercised and enjoyed. That contention appears to their Lordships to mean, in effect, that the powers conferred upon the company are, in relation to this matter, really compulsory. But it is admitted that the letters patent do not, *per se*, confer compulsory powers; that they are only enabling in character and merely determine what is *intra vires* of the company, as would a memorandum of association determine it in this country in the case of a limited liability company under the Companies Act. The language of s. 2 of the Act of 1882 is permissive, not compulsory. It provides that companies incorporated under that Act "may" construct, maintain, complete, and operate works. By the Interpretation Act (R. S. Ont., 1877 c. 1) it is provided that in any of the revised statutes of Ontario the word "shall" is to be construed as imperative, the word "may" as permissive, when not inconsistent with the context and object of the

particular statute. Again, some of the sections of the Act of 1877, incorporated into s. 3 of the Act of 1882, confer, as has already been pointed out, compulsory powers; but these powers are confined to the matters already mentioned. In no other cases have the company compulsory powers.

Their Lordships cannot, therefore, find anything in the Act of 1882 which would require the word "may" in s. 2 of that statute to receive other than its permissive meaning. The very fact that special provision is made in s. 32 of the Act of 1877 for dispensing with the consent of the owner of land outside the city and referring the matter to arbitration furnishes a strong argument for holding that in all other cases the powers of the company are not compulsory. On the whole their Lordships are of opinion that the letters patent, coupled with the statute of 1882, confer upon the respondents the right to refuse with absolute impunity to permit the appellant company to erect any poles or wires for the production, distribution, sale, &c., of electricity on the streets, highways, or public places in the city of Toronto, and that the contention of the company on this point cannot be sustained.

These conclusions necessitate a brief examination of the dealings of the appellant company and the respondents touching the supply of electricity to the city of Toronto from the year 1883 to the date of removal of the poles of the former in the year 1912. The agreement of August 30, 1883, mentioned in the order appealed from, was made between the respondents and the promoters of the appellant company, and was adopted by the company, after incorporation. It begins with a recital that the promoters had applied for a charter of incorporation of a company under the name of "The Toronto Electric Light Company" but that the same had not yet been granted, that the promoters were the provisional directors to be named in the charter of incorporation when issued; that they were desirous of making all provision and agreements necessary to enable them to proceed with the erection

of poles and wires and all other apparatus for supplying electric light on the streets and public places, and in buildings, public and private, in the city of Toronto, so that the same might be in operation during the annual exhibition of the Industrial Exhibition Association of Toronto; and that they had applied to the respondents for permission to erect such poles and wires in the public streets and places of the city as might be necessary for those purposes. It then further recited that the respondents had held a meeting and on August 6 passed a resolution that permission be granted to the Toronto Electric Light Company to erect poles and wires temporarily, for the purpose of testing the electric light, within an area about one square mile in extent, bounded as therein described, upon condition, that the poles be erected under the supervision of the city engineer, be not less than 150 feet apart and 30 feet high, and that they and all other appliances and apparatus erected on any of the public streets and places within the described area should be subject to removal after three months' notice from the respondents until otherwise provided by special agreement. It then provides that the permission be given to erect these poles and other apparatus within the area described for the purposes mentioned in, and in conformity with the terms of, the resolution; and that the respondents should allow the Toronto Electric Light Company when incorporated, to erect, subject to the provisions and conditions therein contained, "upon or in the public streets, squares, and other places within" the aforesaid area, all such poles, wires, and other apparatus as the company might require for the purpose of lighting such streets, squares, public places, and public and other buildings within the same. It lastly provided that that agreement was only an interim agreement until the appellant company should receive its charter of incorporation, and should have duly executed an agreement similar to the present one in all its terms and conditions.

The appellant company having been incorporated on September 23, 1883, in the month of December, 1883,

applied to the respondents, through their Fire and Gas Committee, for permission to erect poles, within the area of the city for electric lighting purposes, and where necessary to replace those already erected with poles of greater height. That committee made a report recommending that permission should only be granted to place poles on Front Street as far west as Bathurst Street "on the same terms and conditions as the privileges already accorded" to the company. The respondents adopted the report with some amendments (not disclosed in the record), and an extract from it containing its substance was on December 13 forwarded by the city clerk to the appellant company with an intimation that the respondents had adopted the report of their committee. Now, stopping there for a moment, it is, in their Lordships' view, clear that the right asserted by the respondents in these early transactions with the appellant company was the absolute right to give or withhold permission for the erection on the streets, squares, and public places in this city of all poles and other appliances for the supply of distribution of electricity for the purposes of lighting the streets or any buildings, public or private, and to have any of these poles when erected removed when they so desired on giving three months' notice. The appellant company do not appear ever to have challenged this right or asserted, as is now asserted on their behalf, that the right and power of the respondents were confined to the mere regulation of the mode and manner in which the company's franchise should be exercised. The requirement that poles actually erected should be removed without any permission being given to replace them with others seems inconsistent with the limited authority which it is now contended belongs to the respondents, but is quite consistent with the absolute power they claim to possess. On March 8, 1884, less than six months after the incorporation of the appellant company, the respondents advertised for tenders for lighting the streets of the City. On March 28, 1884, the appellant company, in answer to this advertisement, sent to the chairman of the respondents' Fire and Gas Committee a

tender for the work mentioned. That tender was on August 30 accepted by the respondents; and on September 6, 1884, the first of a long series of contracts in writing for street lighting was entered into between the appellant company and the respondents.

This contract, after reciting the advertisement for tenders and the sending in and acceptance of that of the respondents, contains a covenant by the appellant company to supply for a term of five years from May 15, 1884, all the electric lights required by the respondents for street lighting purposes and for the lighting of public parks, squares and other public places in this city. It also provides that the respondents may, on giving six months' notice, discontinue the use of any lights until their number is reduced to fifty; may upon a like notice cancel the contract; and further, that the appellant company shall, on receiving six months' notice (presumably on the cancellation of the contract), remove, at their own expense, all their wire cables, poles, and other appliances from off the streets and other public places within the limits of the city, and restore these streets and public places to as good a condition as they were in when these poles and appliances were erected; and, further, that all the street lighting should be done to the satisfaction of the city engineer or such other officers as the respondents should appoint for the purpose. This agreement did not run its course. It was superseded by another agreement of January 14, 1886. It is quite true that the company commenced their commercial lighting before their street lighting. They began to receive revenue from the former in the months of February, 1884, and not from the latter till June, 1884, and the entire revenue obtained from the former in that year amounted to 7323.61 dollars and from the latter 4805.62 dollars. As, however, the agreement of 1884 was not made till September 6, more than half the latter sum and more than two-thirds of the former must have been earned during the currency of the Morton agreement adopted after incorporation. Mr. J. J. Wright,

who has been manager of the company for twenty-six years, was examined on this point. He stated that when he first became connected with the company about forty or fifty street lights were in operation; that for ten or fifteen years the company put up its poles and carried its wires to any customer who wanted electric light; that in the year 1901, when litigation was threatened between the parties, and the respondents apparently wished to get rid of the appellant company on the ground that it had amalgamated with another company permission for the erection of poles for private lighting was for the first time required, and that from that time forward it was generally, if not quite invariably required. All this may well be. In Toronto, as in most other places presumably, electric lighting was looked upon as a boon and those who provided it as public benefactors. Their Lordships are quite convinced that the respondents were perfectly cognizant of the loose practice which prevailed. They knew all about it. That is apparent from the reports of their city engineer from the year 1890 to the year 1900. If the implied consent of the respondents during this period to the erection of the appellant company of poles and apparatus to supply private customers was all the latter required to sustain their title to erect and indefinitely maintain them for that purpose, their case might be a strong one; but the former practice was practically abandoned during the eleven years from 1901 till 1912, and contemporaneously with its abandonment written agreements were entered into between the parties in reference to street lighting asserting the right of the corporation to insist on the removal of poles erected for that purpose, most of which poles, according to the finding of Middleton J., served for the purposes of both public and private lighting. It will only be necessary to examine the provisions of three of these agreements at any length. That of January 14, 1886, provided for the supply by the appellant company of electricity for from 100 to 200 lights, as might be required by the respondents for street lighting and for the lighting of public parks, buildings, squares, and other public places in the city of

Toronto for a period of four years and six months from July 1, 1886, on the terms set forth in the specification therein mentioned. By it the company were bound to erect and place electric lights when and where they should be, by notice, required so to do, and to all other places in the said city besides the places where the same were then set up. The agreement, unlike that of 1884, does not contain any provision for the removal of the necessary poles and apparatus after termination of the contract. The respondents' counsel contended, however, that this provision is implied, as the permission was only given to erect apparatus for the purposes of the contract, and therefore terminated with the contract.

That agreement was followed by an agreement of a somewhat different character entered into between the same parties on November 13, 1889. It begins by reciting that the company had been engaged in the business of producing and supplying electric light in the city of Toronto on the overhead system, and had plant, poles, and material in use therefor, by which light was then being supplied to the city and to individual citizens thereof; that the company desired to extend their works for the production and supply of electricity for light, heat, and power, and for other purposes, and had applied to the respondents for the right to lay down underground wires, conduits, and appliances for the further distribution and supply of electricity throughout the city, and that the corporation had agreed to grant such right. It is to be observed that both the letters patent authorize the laying down and maintaining under the streets, squares, and public places of the city of tubes, pipes, and all other apparatus and appliances for the supply and distribution of electric light and power to such persons, companies, and corporations as may require the same; and that s. 2 of the Act of 1882 also empowered the company to construct works for the distribution of electricity for the purposes of light, heat, and power, by any means, under as well as through and along the streets, highways, and public places of the city. The agreement

proceeds to provide that the respondents thereby granted to the company the right (in addition to their other works and plant in operation for the use of the city and individuals as aforesaid) to construct and lay down and operate underground wires, conduits, and appliances for the distribution and supply of electricity for the purposes already mentioned, with the right to take up, renew, alter, and repair the same. It further provides that the respondents should have the right at the expiration of thirty years from the date of the agreement, on giving one year's previous notice in writing to purchase all the interest and assets of the appellant company, comprising plant, buildings, and materials used or necessary for carrying on its business; and that in case the respondents should fail to exercise this right of purchase at the expiration of the said period of thirty years they should have the right to exercise it at each succeeding period of twenty years on giving a like notice.

This was the origin of the appellant company's underground system. It was not disputed that an absolute indefeasible right was by this agreement conferred upon the company to maintain, use, and enjoy their underground system until the respondents should exercise their right of purchase, but it was resolutely contended by the appellants that owing to the presence in the agreement of the words in brackets, namely, "in addition to their other work", &c., and to the provisions touching the purchase of all the "interest and assets" of the company, comprising plant, buildings, and material, a right equally absolute and indefeasible was conferred upon them to use, maintain, and enjoy their overhead system for the same period. This appears to their Lordships to involve a rather forced construction of the language of the agreement; but even if this were its true construction, it would, of course, be competent for the parties by a subsequent agreement to rescind the agreement as far as its provisions relate to the overhead system, and to give up the rights claimed to be acquired by it in reference to that system. It

is therefore necessary to refer to some of the subsequent agreements to ascertain whether or not this has been done.

Of the many contracts entered into between the parties, that of December 10, 1900, may be taken as a specimen. It begins by reciting that the respondents have by advertisement called for tenders for certain electric lighting for the streets and other public places of the city for five years from January 1, 1901, in accordance with certain printed specifications, and that the appellants' tender had been accepted. It then provides that the appellants shall for five years from the above date supply such number of electric lights, not exceeding 1,100, as may from time to time during the contract be ordered in writing by the secretary of the fire department or other duly appointed officer, the same to be located on the streets, squares, parks, and lanes of the city as may from time to time be specified by the said secretary, and also shall erect such additional arc electric lights over and above the 1,100 when and where required as therein mentioned in other places and streets in the city besides "where the same are then already set up," that all poles (if any) erected are maintained for the purposes of the contract should be located and erected under the supervision of the secretary of the fire department, and that the location of any lights shall be changed from one place to another as directed by this officer. It was not suggested that these 1,100 lights did not include the lights supplied by the overhead system existing on November 13, 1889. An altogether new provision is then introduced to the effect that in the case the appellant company should amalgamate with or enter into any pooling arrangements with the Consumer's Gas Company the contract should be altogether forfeited. On referring to the specification it will be found that it is provided that at the expiration of the contract all poles and other appliances used by the contractor upon the city streets should, at the option of the respondents, be removed by the contractor, and the road-bed and side-walks restored as though the poles had not been erected thereon, or

should be purchased by the respondents at the price to be agreed upon or determined by arbitration, and if not purchased, that the respondents should within three months after the expiration of the contract, be at liberty to remove the same at the expense of the contractor, in this case the appellant company. These provisions, while manifestly applying to the overhead system existing on November 13, 1889, as well as the subsequent additions to it, are wholly inconsistent with the notion that by the agreement of that date the appellant company had acquired an absolute indefeasible right to maintain and use the overhead system of supply then existing for a period of thirty years thence ensuing.

If such a right was conferred by that agreement it was by this later agreement of 1900 absolutely abandoned and the right of the respondents again asserted to require the overhead system to be removed if they so pleased. The specification for the succeeding agreement, that of December 29, 1905, touching the supply of electricity for street lighting for five years from January 1, 1906, similarly requires that all the poles used by the contractor shall, at the expiration of the contract, be removed, or at the option of the respondents, purchased. The absolute right conferred upon the respondents by s. 2 of the Act of 1882 to permit or prohibit the erection or maintenance of an overhead system of wires for electric supply on the streets, squares, and public places of their city has thus been asserted, guarded, and preserved, and in their Lordships' opinion the provision touching the purchase of overhead plant contained in the agreement of November 13, 1889, means no more than this, that the respondents shall be entitled to purchase, when they purchase the underground system, such poles and plant of the overhead system as may be then found lawfully erected on the streets and public places of the city. No estoppel arises in this case as there is no evidence whatever that both the contracting parties were not fully aware of their respective legal rights. It may well be that the appellant company never anticipated that the respondents would insist

upon the removal of posts carrying wires, erected with their implied consent but not in pursuance of any formal agreement. With the hardships (if any) or the moralities of the case, this Board has no concern. It deals with the legal rights of the parties and those alone, and having regard solely to them, their Lordships are on the whole of opinion that the judgment appealed from was right and should be affirmed and this appeal be dismissed and they will humbly advise His Majesty accordingly. The appellant company must pay the costs of the appeal.

Solicitors for the appellants : *Blake & Redden.*

Solicitors for the respondents : *Freshfields.*

Calcutta High Court.

PRESENT : CHATTERJEE, J. & WALMSLEY, J.

CIVIL APPELLATE JURISDICTION.

APPEAL FROM APPELLATE DECREE.

[No. 273 of 1914.]

SERAJMAL KHORAD..... Defendant, Appellant.

vs.

ABHOY KUMAR ROY CHOWDHURY AND ANOTHER..... Plaintiffs,

Respondents.

Civil Procedure Code (Act. V. of 1908), sec. 91—Calcutta Municipal Act (III, B.C., of 1899), sec. 336—Vesting of highway in public authority does not preclude private individuals suing with leave in respect of a public nuisance on street—Dedication, acceptance of, how established.

Section 336 of the Calcutta Municipal Act by vesting public streets, including the soil, in the Calcutta Municipal Corporation does not take away the right of members of the public to sue under section 91 of the Civil Procedure Code in respect of a nuisance committed on the street.

Where a highway is dedicated to the public, acceptance by the public requires no formal act of adoption by any persons or authority but is to be inferred from public user of the highway.

Appeal preferred on the 6th February 1914 against a decree of Mr. A. H. Cuming, District Judge of Zillah 24-

Parganahs, dated the 24th November 1913, confirming a decree of Babu Bhagabati Charan Mitter, Subordinate Judge of that place, dated the 29th April 1913.

Abhoy Kumar Roy Chowdhury and another, the Plaintiffs in this suit, claimed certain lands as a public thoroughfare, which had been obstructed by the Defendant by placing thereon a number of bricks and threatening to block up the same permanently by erecting a wall across the same. The Plaintiffs obtained the consent of the Advocate-General in writing and instituted this suit for a declaration and an injunction restraining the Defendant from obstructing the passage of the public along the said land, which they claimed was public land. The Defendant pleaded that he was in possession of the land as shebait of an idol; that the former owners of the land had made a gift of the land at the time when his father contemplated building a temple on the south and east of the said land for the said idol, to be included within the said temple; that the public never exercised any right of way over the said land without the leave and license of the Defendant, and that the Defendant or his predecessor in interest never intended to dedicate the land to the public nor even acquiesced in any acts of user; that the land in question connects two public roads known as Ultadingi Junction Road and Budreedas Temple Lane; that before the year 1886 there was no Ultadingi Junction Road which was constructed that year by filling up a portion of the Mahratta ditch, and it was after the construction of the said road, that necessity arose for the public to use the passage to and from the said two public roads, as it was a very convenient short cut.

Evidence on both sides proved that the road in question had been used by the public both for foot and vehicular traffic. The Defendant's contention of user by leave and license failed in both the lower courts, condition and appearance of the disputed land clearly indicating its user as a public thoroughfare. It was also found by the courts

below concurrently that the public began to use the road as a public thoroughfare, as soon as necessity arose in 1886. In 1893 the then owners of the land addressed a letter to the Calcutta Corporation asking the Corporation to take over the care of the road as a public thoroughfare. There was no evidence that the Corporation expressly accepted this offer; but the land in question was swept and watered by the Municipality and gas lamps were erected on the land. The Defendant on the other hand produced a letter from the District Engineer of the Corporation denying that the land was a road under the Municipality. Defendant also produced a deed of gift, dated 23rd January 1911, executed by two executants, each attested by one witness only, which purported to make a gift of the said lands unto the said idol, according to a previous agreement by the father of the executant to the father of the Defendant, at the time when the temple of the idol was begun.

Sir Rash Behary Ghosh (with Babu Jogendra Nath Mukherjee) for the Appellant.—A suit for removal of nuisance in any streets of Calcutta is only maintainable by the Calcutta Corporation and by it alone. Section 336, Calcutta Municipal Act, III of 1899. The highway as well as the soil are vested in the Municipality.

Section 91, C.P.C., is not applicable to all forms of public nuisance. Obstruction to a highway which vests in a Municipal body does not come under this section. Section 91, C.P.C., was enacted in consequence of certain remarks of Wilson, J., in *Chunilal v. Ram Kishen*¹. Questions of highway involve conflicting title to the soil and can be treated as such.

At least the Corporation ought to have been made a party to the suit—if Plaintiff succeeds the Corporation will be bound to maintain the street—a burden will be imposed on them. Halsbury XVI, p. 33.

¹ I.L.R. 15 Cal. 460 at p. 146 F.B. (1888).

Plaintiffs' claim to highway is based upon user. Court below was in great error in applying *Mann v. Brodie*¹ which may be an authority for prescriptive highway according to Scotch law. English law stands on a very different footing. There, as here, prescriptive highway will be defeated by proof of commencement within living memory.

Plaintiffs were bound to fail upon the case of a dedication. It may be expressed or implied. Plaintiffs' case seems to be one of express grant, as they rely on the letter of 7th July 1893. When Plaintiffs set up express dedication they must stand or fall by it, the letter negating any intention to dedicate before 1893. There would be no valid dedication when there was no acceptance. The Corporation refused acceptance and therefore there was no dedication. Where highways vest in local authorities, acceptance of dedication by local authority is essential to its validity.

User is only evidence which may imply dedication. User is less cogent evidence of dedication if the owner be none resident. It was not competent for those gentlemen who wrote the letter, dated 7th July 1893, having already entered into an agreement with my client, to dedicate the land to the public. A highway can be dedicated only by an owner in fee-simple. The indenture, Ex. D. is not a deed of gift but witnesses an "agreement," a "treaty with the said Kapurchand." As soon as they entered into treaty with my father they became incapable of dedicating the land to the public, because it would be in derogation of the right created by them in favour of my father.

Section 122, Transfer of Property Act.—It is the essence of gift that it is a mere act of generosity—an act in disobedience of legal obligation will not be enforced by a Court. Dedication being alienation *protanto* can only be made by a competent person. User during a period when owner was under legal incapacity to make a dedication, cannot be evidence of dedication. A man must be just before being generous.

¹ L. R. 10 A. C. 378 (1885).

Babu Provash Chandra Mitter (with Babus Jnanendra Nath Sarkar and Bhupendra Nath Basu) for the Respondents.—According to section 336 the soil only of the highway vests in Municipality; the right of passage is with the public and can only be exercised by the public. Interference with such a right is a public nuisance within the contemplation of section 91, C.P.C. The Advocate-General can maintain such an action of interference with public highway on behalf of the public, without adducing any evidence of actual injury to the public. *Attorney-General v. Shrewsbury*¹. Section 91 is an enabling section and creates a right of action where there was none. Sovereign as *parens patriæ* sues by Advocate-General. *Per Jessel, M. R., Attorney-General v. Cockermouth*². When the public sues for a thoroughfare, if it is for a sufficient time the owner is presumed to have dedicated and the public to have accepted the same as a highway. It is with the public to accept and not the local authority in whom the soil alone of the highway vests. The right of passage vests in the public.

The JUDGMENT OF THE COURT was as follows :—

WALMSLEY, J.—The suit from which this appeal arises was instituted by two Hindu gentlemen with the permission of the Advocate-General, in regard to a piece of land which they described as a public highway, and the relief for which they asked is in the terms of Form No. 31 in Appendix A. of the Civil Procedure Code. The defendant, now Appellant, is a Marwari, who has built a temple on land immediately adjoining the strip which the plaintiffs say is a public highway.

The learned Subordinate Judge in the first Court found that the plaintiffs had proved their case and granted them a decree, and this decision was confirmed by the learned District Judge in appeal.

The first argument pressed in support of the appeal is that the plaintiffs could not sue under section 91, C.P.C., because

¹ ●L. R. 21 Ch. Div. 752, 756 (1882).

² L. R. 18 Eq. 172 at p. 176 (1874).

the land lies within the area of the Calcutta Municipality, and reference is made to section 336 of the Calcutta Municipal Act which declares that "All public streets . . . including the soil . . . shall vest in and belong to the Corporation." The defendant has no authority to quote in support of this argument, and we have to read the two sections together, and consider whether section 336 of Act III of 1899 imposes any limitation on section 91, C. P. C. For my part I cannot see anything to suggest such a limitation. Section 91 of the C. P. C. is extremely broad in its terms; and if it had been intended to exclude from its scope cases in which a local authority, such as a Municipal Committee or a District Board, might be regarded as competent to safeguard the interest of the public, it would have been very easy to insert words to that effect. As the section stands, it does not matter where the alleged public nuisance is situated: any two persons, provided they obtain the Advocate-General's consent in writing, may sue for its removal. Again, the other section, section 336 of the Calcutta Municipal Act, merely vests the proprietary right in the soil of highways in the Corporation: but it does not add that in case of obstruction the Corporation alone shall have the right to sue for the removal of the obstruction. In my opinion, therefore, there is no weight in this first argument.

Next it is urged that the dedication to the public use on which the plaintiffs rely is invalid, and this argument has several branches. It is said that the Courts below have not found when the dedication did take place, that the dedication cannot have been earlier than July 27th, 1893, when a letter, Ex. 6, was addressed to the Secretary of the Corporation by Budh Singh, Bishan Chand and Budree Das, that in 1893 the signatories to that letter were incompetent to make the dedication because they had previously entered into an oral contract with the defendant's father respecting the land, and that in any case such dedication was invalid because there

Lastly, it was urged that the lower courts were wrong in holding that the oral agreement set up by defendant, was inoperative, because it was not reduced to writing.

One of these points may be disposed of at once, that is, the objection that acceptance by the Corporation was necessary to make the dedication operative. The learned Vakil can refer us to no authority for this proposition, while, on the other hand, there is the statement in para. 43 of the Article on Highways in Lord Halsbury's Laws of England, that "acceptance by the public requires no formal act of adoption by any persons or authority but is to be inferred from public user of the way." It may be added here that although there was no formal acceptance, the lower courts have found that the lighting, repairing, watering and scavenging of the alleged highway was carried out by the Corporation.

Now let us turn to the time and fact of dedication. In this Court it is conceded that a letter in the terms of Ex. 6 was written in July 1893 to the Secretary to the Corporation. That letter speaks of the road as having been used by the public for about six years. The learned Subordinate Judge does not record an exact finding as to the year in which the public began to use the strip of land, but he points out that one of the two highways which it connects was constructed in 1886. The lower Appellate Court, however, records very clear findings on this point: and says more than once that the public began to use the land as a passage in about 1887. Paragraphs 51 and 52 of the Article already mentioned deal with user as evidence of dedication. On the definite finding of user since 1887, I do not think that the dedication must be regarded as made in July 1893, when the letter, Ex. 6, was written. Without that letter the evidence of user since 1887 is enough to justify the inference of a dedication in 1887, and the letter with its reference to six years' user corroborates that evidence. It must be remembered that the Defendant offers no evidence to rebut the inference, but contents himself with

pleading that certainly before 1893, possibly before 1887, the signatories had parted with their rights in the land.

The remaining question therefore relates to this alleged agreement of 1887 or thereabouts. The evidence of this alleged agreement is to be found in Ex. D, a deed of gift, executed in 1911 by Budh Singh and the son of Bishan Chand in favour of the Defendant. Regarding this document and its allegation of a previous agreement, the learned District Judge holds that Ex. C is not operative because the signatures of the executants have not been properly attested, that the alleged gift could not be made except by a registered document, and that by the very words of Ex. C the ownership of the land remained with the executants up to 1911. The first of these objections is fatal: one executant signed the document at Calcutta and the other at Azingunj, and one witness only attested each signature. The third objection is equally fatal to the defendant's assertion that the dedicators were not competent to dedicate, for they say in the document that they are in possession, and this is borne out, as the lower courts remark, by their possession of the title deeds. In regard to the second objection the learned Vakil has urged that there was a sort of exchange between the parties in 1887 and that no document was necessary. But this attitude is inconsistent with Ex. D, for the executants convey the property "by way of free gift." If the Appellant received the property by way of free gift in 1911, it is clear that there can have been no operative agreement concluded in 1887.

In my opinion none of the arguments put forward on behalf of the Appellant has any substance and I think that the appeal should be dismissed with costs.

D. CHATTERJEE, J.—I agree.

Appeal dismissed.

Bombay High Court.

BEFORE MR. JUSTICE BATCHELOR AND MR. JUSTICE SHAH.

EMPEROR. *v.* RANCHODLAL AMRATLAL. ⁺

Bombay District Municipalities Act (Bom. Act III of 1901) sec. 3 cl. (7)†—Building Wire-fence.

An ordinary wire-fence is not a building within the meaning of cl. 7 of s. 3 of the Bombay District Municipalities Act, 1901.

The accused put up an ordinary wire-fence on his own land without permission of the Municipality. For this he was tried for an offence punishable under s. 96 (5) of the Bombay District Municipalities Act, 1901. The trying Magistrate convicted the accused of the offence charged and sentenced him to pay a fine of Rs. 51 and to pay process fee of one anna under s. 31, cl. 3 of the Court Fees Act, 1870.

The accused applied to the Sessions Judge of Ahmedabad, who referred the case to the High Court, observing as follows:—

“I am of opinion that a wire-fence is not a building within the meaning of the Act. It is not necessary to get Municipal permission before putting up a wire-fence, the definition of building in s. 3 (7) not covering a fence”.

The reference was heard.

T. R. Desai, for the accused.—The question is whether putting up a wire-fence in one's own compound is erecting or adding to a building so as to require previous permission of the Municipality before so doing as required by s. 96 of the Bombay District Municipalities Act, 1901. We submit that the learned Magistrate was wrong in holding that the act of the accused fell within s. 96, cl. 5. The accused neither erected a building nor added to it. The term ‘building’ as defined in s. 3, cl. (7) of the Act does not and cannot include a wire-fence. The definition of the term ‘building’ in the Act

* Criminal reference No. 3 of 1917, made by B. C. Kennedy, Sessions Judge of Ahmedabad, against conviction and sentence passed by Sakarlal Nabhubhai Desai, Honorary Magistrate, First Class, at Ahmedabad.

† The clause runs as follows:—

7 “Building” shall include any hut, shed or other enclosure, whether used as a human dwelling or otherwise, and shall include also walls, verandahs, fixed plat-forms, plinths, door-steps and the like.

of 1901 is stated to include a hut or other enclosure and also walls, verandahs and the like. The earlier Act of 1873 defined it to mean a house, a hut, a shed or an enclosure and to include compound walls, verandahs and the like. The term as defined in the old Act has been judicially interpreted not to include the Karvi (reed) fence: *Queen Empress v. Janardhan*¹; and it is further held that it did not include a wattle fence. The term 'building' carried an idea, in the words of their Lordships in *In re Salomibai*² of something of a substantial kind. Consistently with these rulings I submit, it should follow that a wire-fence cannot be taken to be a building. It is not permanent in its nature nor is it a structure. There was already a hedge-fence of thorns. Since the definition of the term in the New Act is not exhaustive this Court has to interpret it in the natural and popular sense of the word; *Municipal Commissioner of Bombay v. Mathurabai*³. Webster in giving the several meanings of the term building expressly mentions that it would not include a fence: see also Murray's Dictionary, p. 1162; Stroud's Judicial Dictionary, Vol. I, title building. There is nothing to support the view taken by the Magistrate who has not given any reasons for the same.

I further submit that there were neither alterations in the building nor any addition to it. The main building of the Mill was neither altered nor added to; the wire-fence did not affect the building itself. Nor is the fence itself an enclosure. The term 'enclosure' as interpreted in *In re Salomibai*, suggests the idea of something that is enclosed rather than of the fence that enclose. The fence not being a building no permission was necessary and the conviction is therefore wrong in law and should be set aside.

N. K. Mehta, for the Municipality.—I submit the term 'building' should be interpreted in a more comprehensive sense; that seems to have been the object of the Legislature for

¹ (1880) Unrep. Cr. c. 145.

² (1888) Unrep. Cr. c. 428.

³ (1906) I.L.R. 30 Bom. 558.

whereas in the Act of 1873 it was defined as 'meaning' certain things; in the present Act the Legislature has defined it as 'inculding', enclosed things and the like. This fence of iron wires is supported by posts put up on the ground and is thus something more than a mere hedge or a reed fence. It is practically of a permanent nature and besides is an addition to the building; the addition need not be in the building itself; it is placing something on the building which did not exist before. Further, it would come within the section in any event as an enclosure. The object of the Legislature seems to be to put the public under an obligation to give previous notice to the Municipality in every case, so that the Municipality may be able to see that no encroachment is made by the person going to do any work or act in respect of the same. The fence of iron is not materially different from a compound wall. The question is one of great importance to the Municipality and I submit the interpretation should be so put as not to fetter the action of the public body.

BATCHELOR J.—The question before us in this reference from the learned Sessions Judge of Ahmedabad is whether an ordinary wire fence is a building within the meaning of cl. 7 of s. 3 of the Bombay District Municipalities Act of 1901.

There is not much authority to guide us, but it has been held in this Court that a 'Karvi' or reed fencing was not a building within the meaning of that word as used in s. 33 of the Act of 1873, see *Queen-Empress v. Janardhan*¹. Under the same Act this Court has also held that a mere wattle fence was also outside the definition of building: See *In re Salomibai*². It appears therefore that consistently with the rulings the wire-fence now before us should be regarded as outside the provisions of cl. 7 of the present s. 3. That is confirmed by the definition of the word 'building' in Webster's Dictionary, where it is expressly mentioned that

¹ (1880) Unrep. Cr. c. 145.

² (1888) Unrep. Cr. c. 428.

in the popular acceptation of the word it would not include a mere wall or fence. It is no doubt true to say that by the special provisions of cl. 7 a wall is to be included within the word 'Building'. But it is so included by reason of the special words importing its inclusion. There are no such special words to sweep in a fence which is therefore in my opinion outside the definition. But then Mr. Mehta contended that even if the fence could not be brought inside the definition as being a species of wall, yet it ought to be held to fall within the definition as being an enclosure. Now here the clause reads that 'building' shall include any hut, shed or other enclosure, and, looking to the wideness of these words and to the context, I am of opinion that the enclosure referred to must be interpreted as *ejusdem generis* with the preceeding words 'hut' and 'shed', that is to say, must be taken to refer to some fabric or structure or thing built in the more popular acceptance of the word. In that view it appears to me that the wire fence is as much outside the word 'enclosure' as outside the word 'wall'. Any educated Englishman would, I think, feel that it was a misuse of language to speak of a wire-fence as a 'building'.

The conviction, therefore, must be set aside, the accused acquitted and discharged and the fine, if paid by him, must be refunded to him. He must also be reimbursed the process fees which he has paid under s. 31, cl. 3 of Act VII of 1870.

Shah J.—I agree.

Conviction and sentence set aside.